S. Hrg. 113–498

WILDFIRES: ASSESSING FIRST RESPONDER TRAINING AND CAPABILITIES

HEARING

BEFORE THE

SUBCOMMITTEE ON EMERGENCY MANAGEMENT, INTERGOVERNMENTAL RELATIONS, AND THE DISTRICT OF COLUMBIA

OF THE

COMMITTEE ON HOMELAND SECURITY AND GOVERNMENTAL AFFAIRS UNITED STATES SENATE

ONE HUNDRED THIRTEENTH CONGRESS

SECOND SESSION

JUNE 5, 2014

Available via http://www.fdsys.gov

Printed for the use of the Committee on Homeland Security and Governmental Affairs

U.S. GOVERNMENT PRINTING OFFICE

90–916 PDF WASHINGTON : 2014

For sale by the Superintendent of Documents, U.S. Government Printing Office
Internet: bookstore.gpo.gov Phone: toll free (866) 512–1800; DC area (202) 512–1800
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WILDFIRES: ASSESSING FIRST RESPONDER TRAINING AND CAPABILITIES

THURSDAY, JUNE 5, 2014

U.S. SENATE,
SUBCOMMITTEE ON EMERGENCY MANAGEMENT,
INTERGOVERNMENTAL RELATIONS,
AND THE DISTRICT OF COLUMBIA,
OF THE COMMITTEE ON HOMELAND SECURITY
AND GOVERNMENTAL AFFAIRS,
Washington, DC.

The Subcommittee met, pursuant to notice, at 2:33 p.m., in room SD–342, Dirksen Senate Office Building, Hon. Mark Begich, Chairman of the Subcommittee, presiding.

Present: Senator Begich.

OPENING STATEMENT OF SENATOR BEGICH

Senator BEGICH. We will start here in just a couple minutes. We are working on the video, and we have someone that will be testifying from Alaska, so we are trying to save him 3 days of travel to give us 5 minutes of their wisdom. So be patient. Please continue while we wait.

[Pause.]

This is our effort to move the Senate into the 21st Century as we do this testimony. This is the first time, I think, this Committee has done this, and some of us that are far distance, we want to try new technology. If it does not work, they have Plan B and C—just like firefighters have. There is never one plan.

[Pause.]

Mayor Navarre, can you hear me? Perfect. We can hear you very loud and clear.

Mr. NAVARRE. Yes.

Senator BEGICH. Are you guys ready on the technical team? By non-answer, that is approval. That is how it works. You do not answer, it is a yes.

So what we will do—and I know—Mayor Navarre, do you have yours on mute in case there is any background sound until we are ready to go? Or do we mute that here? Do not do anything, Mike. Are we good? OK.

Thank you all very much for being here. This is something we are trying because it is hard to get people here sometimes, especially from the West, where there are a lot of these issues, especially firefighting issues, and especially in Alaska. So it is a pleasure to have folks here.

This is the Subcommittee on Emergency Management, Intergovernmental Relations, and the District of Columbia, and I apologize. I have a little cold here, so I am kind of suffering so I appreciate you all being here.

I want to thank the witnesses for being here, especially on short notice, to lend their expertise to our discussion. We are here today to take a closer look at the problems that are serious concerns to many States and that is wildfires. This is a challenge that confronts communities of all sizes, towns and villages, cities, States, and the Federal Government.

As a former mayor myself, I know firsthand how important it is to have personnel and resources to prevent and fight fires when they occur. The stakes are high, and we must ensure that first responders who are out there protecting lives, homes, and businesses receive the training and support they need. That is why we are here—to learn from these experts and leaders about the situation on the ground, across the country, and from a variety of perspectives. We have to know where we are succeeding and where we need more resources or a new approach.

There are many different levels of government involved in fighting fires. From local to various Federal agencies, it is important we have comprehensive protection and response no matter where a fire occurs. I know providing that protection has become more and more expensive, especially on the Federal level.

In the past 12 years, Federal costs have averaged more than $3 billion a year. That does not include the $2 billion spent by State and local communities as well as other private spending. Those costs are increasing because wildfire activity is growing. When you talk about wildfires, most people think of flat, grassy States like Montana or States hit by drought like California. But as weather patterns have been changing with the rest of our climate, more States than ever are being hit by huge wildfires.

In the past decade, the amount of acres burned up are up by almost 67 percent. Right now in Anchorage, more than 700 men and women are fighting the dangerous fire in the Kenai. It is called the "Funny River fire." But there is nothing to joke about with this blaze. Brave firefighters, including hotshot crews and smokejumpers, have been fighting to put out this fire since May 19. They have done an amazing job, and all Alaskans are deeply grateful for their efforts. As of yesterday, the fire was 59 percent contained, and danger to life and property has been nearly eliminated. It scorched almost 200,000 acres of our forest, close to residents, businesses, and individuals.

It is early in the fire season for something of this magnitude in Alaska. My State has had one of the warmest winters on record, and now strong winds and low humidity are combining to allow these fires to grow quickly.

Over the weekend there were reports of 15 new fires in the Fairbanks Service Area, from Chena Hot Springs to Tok. Luckily, these were relatively small fires, but they only stayed that way because of the outstanding work of our firefighters.

To make sure we are as prepared as we can be, that we have the resources and experienced personnel out there in the field, we have to look at the first responder hiring and retention practices. The

skills men and women learn during training to become a firefighter or smokejumper or hotshot team members are invaluable. We must recognize their importance, not just with words but in how we treat them.

Earlier today, I was proud to introduce the Senate version of the Federal Firefighter Flexibility and Fairness Act to address a glaring misstep in how we treat Federal firefighters. Across the country, municipal firefighters are able to work out changes in their schedule among themselves, with supervisor approval. They can trade shifts without impacting their pay schedules, allowing them to take care of sick family members or attend their children's important events. This type of flexibility is important to morale and life balance, and I am glad that State and local firefighters have it.

But for some reason, Federal firefighters do not. Right now these men and women can only swap shifts within a 2-week period. In an accounting system that the government uses, it ends up with one firefighter receiving no pay for the shift while the other receives overtime, and it does not make sense.

Because the system is so nonsensical, some departments do not allow shift swapping at all. I cannot blame them for not wanting to deal with that headache. But this problem needs to be fixed. Treating our firefighters well is not only the moral thing to do, but it is also fiscally responsible.

The bravery and skills earned by these folks out in the field make it even more important to retain them as long as possible. Attrition reduces the effectiveness of our firefighting teams, which is unacceptable. We need to train and maintain the best teams we can. Clearly, that goes for municipal firefighters as well.

I have been a strong supporter of the important Federal resources like Fire and SAFER grants that go directly to our local fire situation. From Palmer to Nikiski, firefighters have told me how beneficial these grant program are. That is why I am fighting to roll back President Obama's proposed cuts to these programs in this year's appropriation bill.

As a member of the Appropriations Committee, I am committed to restoring the $10 million proposed reduction because every dollar spent will save more than that in local communities.

One last issue I want to bring up very briefly before I introduce our witnesses is a broader issue that impacts many firefighters in Alaska: the disadvantages to seasonal employees in the Federal hiring process. I have been working with Senator Tester and looking closely at the bill that he and Senator Mark Udall have introduced, the Land Management Workforce Flexibility Act (LMWFA), Senate bill 1120. Seasonal workers are so important to Alaska. A large number of Alaskans hold different jobs based on the season since we have such a unique climate. Many firefighters come from the lower 48 to help us fight fires in the summer. Right now it seems to me that the Federal hiring practices are not giving these seasonal workers who have developed great expertise over many years a fair shot if they want to transition to a full-time job in the same field.

I am glad to hear your thoughts on this issue, and I am looking forward to the continuing discussion with Senator Tester.

Let me introduce our witnesses, and I will start with Mr. Jim Hubbard, the Deputy Chief of the U.S. Forest Service (USFS), which is part of the Department of Agriculture. Jim.

TESTIMONY OF JIM HUBBARD, DEPUTY CHIEF, U.S. FOREST SERVICE, U.S. DEPARTMENT OF AGRICULTURE

Mr. HUBBARD. Thank you, Mr. Chairman. I am glad to be here.

As you have noted, we are into the fire seasons, Alaska especially. Arizona and New Mexico are having normal fire activity, but it is busy. The Funny River fire is a bit unusual. You do not have 200,000 acres burn on the Kenai very often, and that gets a lot of attention, especially with the values at risk and the people in the way. And what our season looks like is that June will continue to be a problem for Alaska. Maybe it will moderate by the time July gets here. I hope so. Alaska went a little longer than usual in past seasons.

As we move further into the season and get into July, California and Oregon look particularly bad. Nevada is not going to be good. So that is where we expect most of our problems. It will be scattered throughout the West, as usual, and we will have surprises pop up all across the West. But those three States in particular look problematic.

Our forecasts tell us we probably will be spending more money on suppression than we have in the budget, so we will go through that process again.

We are prepared. The interagency forces are at 14,000 firefighters that are available to us. Currently we have 14 large air tankers, but we could have as many as 22 under exclusive-use contract before the season is over, as those next-generation planes begin to fly for us.

We still have the eight military MAFFS units as surge capacity, and we do have the 72 single-engine air tankers under contract and more than 600 helicopters under contract. So the aviation forces and the ground forces are in place for the season.

But the conditions are challenging. The long-term drought, the changing conditions that we face with climate and with fuels and with insect and disease have all caused problems, not to mention the development that has to be protected that is in the way of some of these difficult situations.

Risk reduction occurs on about 3 million acres per year. That is a substantial amount, and it addresses some of the priorities. It does not cover the territory that needs to be—the risk that needs to be reduced.

It is a combination of what you do on the landscape and what you do in the community and around the community that will save us in the future.

Some of our limiting factors have to do with the transfers that occur when we do not have the suppression dollars to pay the bills and we have to take it out of other accounts in the Forest Service to do so. Then how we budget for suppression has been an ongoing debate. You mentioned do we have the resources and do we have the right approach. Perhaps that needs another look, and other looks such as was proposed by Senators Wyden and Crapo in the bill they introduced that suggests that perhaps the Forest Service

and the Federal agencies continue to provide in their budget the initial attack and the forces and the cost of that initial attack. And we do catch 98 percent of our fires during that initial attack period, but it is those 2 percent that get away that cost us about 30 percent of that suppression budget, and those are fires that perhaps fall into a disaster category and ought to be treated and financed differently.

If that were to happen, then we would hope that the agency could make proposals for using some of that budget constraint to increase the land treatment and reduce the risk further. That would be our approach, and we would hope that something like that could at least be considered.

Thank you, Mr. Chairman.

Senator BEGICH. Thank you very much.

I will ask questions at the end, but let me ask William Dougan, national president of the National Federation of Federal Employees (NFFE), next please.

TESTIMONY OF WILLIAM R. DOUGAN,[1] NATIONAL PRESIDENT, NATIONAL FEDERATION OF FEDERAL EMPLOYEES

Mr. DOUGAN. Thank you, Mr. Chairman and Members of the Subcommittee, for inviting me to testify. Our union represents 110,000 Federal workers, including 20,000 in the Forest Service.

For 22 of my 31 years in Federal service, I fought wildfires, serving in many positions. I spent 16 years on the Tongass National Forest in Sitka, Alaska. I can tell you that firefighting is a dangerous business. When you are on a fire, the only thing between you and trouble is your equipment and the brave men and women with you on the fire line. That is why it is so important that we arm firefighters with the training and resources they need to be safe and complete the mission.

The wildfire problem in the United States is growing. Six of the worst fire seasons since 1960 have occurred since 2000. We must recognize that this is the new normal, and we must change the way we do business to account for it.

With respect to training, the U.S. Department of Agriculture (USDA) Inspector General (IG) issued a report in 2010 that predicted future shortages of qualified firefighters in the Forest Service. Too few were being trained to replace those retiring. That prediction is now coming to fruition, and it is a major problem. Wildland firefighting agencies have done tremendous work to improve interagency cooperation. The development of a consistent certification and training system administered by the National Wildfire Coordinating Group (NWCG) is an outstanding achievement.

Our union is proud to be a partner in the Wildland Firefighter Apprenticeship Program (WFAP), which we hope will take consistency and training to the next level. Unfortunately, this program has been underutilized, in our view.

Within the Forest Service, training and resources are not reaching the field in a timely way. From one forest we are hearing that primary fire personnel are unable to attend training classes that are only offered out of State, leaving them no option for certain

[1] The prepared statement of Mr. Dougan appears in the Appendix on page 21.

training. At another forest we hear that managers are getting their training budget too late to get employees into classes.

Congress can improve access to training by exercising oversight to ensure that the action items developed as a result of the referenced IG report are properly implemented and make certain the apprenticeship program is used to its fullest potential. Also, Congress should make every effort to appropriate funds in a timely manner so resources get to the ground in time to be used.

With respect to workforce retention, the attrition rate for wildland firefighters is alarmingly high. Something must be done about it. Here is something that can be done right now. For a wildland firefighter, experience is hard-earned on the fire line. However, the firefighter career path is blocked by flawed and dysfunctional Federal regulations. Many Federal firefighters begin their careers on temporary appointments. Many return year after year, acquiring valuable training and experience. However, firefighters looking to advance their careers face a critical barrier. Current regulations do not credit their service, regardless of how long, as qualifying for acquiring "competitive status." Because of this barrier to career advancement, many skilled firefighters eventually leave, taking their valuable skills with them.

To explain, agencies have the flexibility to fill positions from current employees under merit promotion or from among civilian applicants under the competitive process. Over 2 million other Federal employees have the status to compete under merit promotion. However, firefighters classified as "temporary seasonal workers" do not. They cannot compete for jobs filled under merit promotion procedures. We strongly urge passage of the bipartisan Land Management Workforce Flexibility Act, S. 1120, which would address this inequity.

Funding for wildfire suppression is also a problem. With the occurrence and severity of wildfires increasing, the portion of the budget that goes to fire suppression and preparedness has increased dramatically.

The expense of fighting wildfires often exceeds the funds appropriated for wildfire suppression. When this happens, agencies transfer funds from other programs into firefighting accounts to cover the shortfall. This so-called fire borrowing results in cancellations and delays in the agency's on-the-ground program of work.

Ironically, many of the canceled projects are those designed to reduce the frequency and severity of catastrophic wildfires. It is robbing Peter to pay Paul, and it costs taxpayers more. We urge Congress to pass the Wildfire Disaster Funding Act (WDFA), S. 1875, to address this.

I will conclude my testimony by quoting one of our members currently out on fire assignment in Alaska: "In Alaska, we do have a well-constructed, tactical plan to deal with fires, but wildland fires are on the increase. We fight to put the fires out immediately. We address the hazardous fuels." But sometimes forests are allowed to grow into a dangerous State of overgrowth and decay, causing a hazardous situation.

It is time for Congress to take action to provide the resources and the flexibility necessary to prevent this hazardous situation from occurring in national forests across the country and to protect

communities across our Nation from wildfire. These reforms cannot wait until next year. They need to be acted on immediately.

I thank the Subcommittee for holding this hearing and I would be happy to answer any questions you may have.

Senator BEGICH. Thank you very much for your testimony.

Just to note, all the written testimony also is included in the record to augment your verbal testimony.

Next we have Kevin O'Connor, assistant to the general president for public policy of the International Association of Fire Fighters (IAFF). Kevin.

TESTIMONY OF KEVIN B. O'CONNOR,[1] ASSISTANT TO THE GENERAL PRESIDENT FOR PUBLIC POLICY, INTERNATIONAL ASSOCIATION OF FIRE FIGHTERS

Mr. O'CONNOR. Thank you, Mr. Chairman. I am here today representing the 300,000 professional firefighters and paramedics who provide fire, rescue, and EMS services across our great Nation.

First, let me thank you for the introduction of the Flexibility Act—our Federal firefighters greatly appreciate it—and for your stalwart support on appropriations for the other programs. It is very much appreciated by our organization.

Wildland fires are increasing in intensity, duration, and scope. They are a threat from coast to coast. From 2003 to 2012, over 17 million acres have been scorched by wildfires, claiming over 300 lives, destroying 34,000 homes, and resulting in over $70 billion in insurance claims.

As you know, Mr. Chairman, the raging fires currently threatening your State are a stark reminder of this present danger. Before the hearing, we spoke with Tom Wescott, our State president in Alaska, and he estimates that the vast majority of his membership, municipal firefighters, will be engaged in those efforts before the fire is finally brought under control.

The scourge of wildfires has become epidemic and will continue to imperil our Nation. The IAFF supports the Administration's proposal changing the way in which the Federal Government budgets for wildland firefighting. It makes sense. It should be done. But it is only a first step.

For decades, foresters and firefighters have battled on how to deal with wildfires. Today, with the increased development in the wildland-urban interface, we must develop a more global and holistic strategy to deal with this issue. Clearly, the Federal Government must take the lead. We applaud Congress for mandating the National Cohesive Wildland Fire Management Strategy. This strategy establishes a national vision for wildland fire management and response. The strategy is an excellent first step, but once again more must be done.

In the 1960s and 1970s, American cities were blighted by an epidemic of arson and fire deaths, analogous to what is occurring today with wildfires. To address this crisis, the National Commission on Fire Prevention and Control issued the landmark report "America Burning." Over 40 years later, the document is frequently cited and still has value. The Federal Government should take a

[1] The prepared statement of Mr. O'Connor appears in the Appendix on page 29.

similar approach to the wildland fire problem. We propose the establishment of a Blue Ribbon Commission, modeled after "America Burning," with congressional participation, to fully study this issue and make recommendations.

Although the IAFF has implored the Administration to establish such a commission, they have yet to act. The Federal Government is the only entity that can ensure the participation of all stakeholders. We hope that, either on their own volition or with a gentle nudge from Congress, they will soon act.

State and local governments also contend with devastating wildland fires. On privately held or State-owned lands, firefighting operations are exclusively handled by State and local assets. It is safe to say that west of the Mississippi and throughout the Southeast, nearly every firefighter will ultimately be called upon to fight a wildfire. Disturbingly, not all firefighters are trained to battle these fires. Cash-strapped fire departments frequently cannot afford to provide training. We propose that the Federal Government establish a pilot program to provide wildland fire training for local firefighters in high-risk areas.

Furthermore, because firefighting is an inherently governmental function, it should be a default policy of the Federal Government to contract with a governmental entity having jurisdiction in the impacted area if additional firefighting resources are needed beyond the Federal effort.

However, if private contractors are required, they should be required to meet the same rigorous standards of their governmental counterparts, period. This is an issue of public safety, firefighter safety, and operational efficiency.

Last, we need to protect the men and women on the fire line. Not quite a year ago, 19 brave wildland firefighters from the Granite Mountain Hot Shots team and proud members of the IAFF Local 3066 died in the line of duty battling the Yarnell Hill fire. Those tragic deaths and, indeed, the death or injury of any wildland firefighter should give us pause.

Wildland firefighting is physically taxing, emotionally draining, and incredibly dangerous. The job differs greatly from that of a structural firefighter. Wildland firefighters are on scene fighting fires for days or even weeks at a time. Through government investment and research over many years, much is known about the health impacts of fighting fires for structural firefighters and how best to protect them. But we are only beginning to examine these impacts on wildland firefighters.

As a leader in firefighter health and safety, the IAFF is uniquely positioned to help coordinate research efforts. With our California Forestry Local 2881, San Diego State University, and much appreciated funding from the Department of Agriculture, research has already started. San Diego, partnering with CDS, studied improving protective clothing worn by wildland firefighters—a great start. To prevent death and injury, it is incumbent that we study appropriate staffing patterns and other operational metrics to ascertain the impact on firefighter health and safety. Partial funding from DOA has been provided for such efforts, and we encourage the Federal Government to continue this investment until the research is completed.

In closing, we must act now and very decisively on multiple fronts to address this complicated issue. I thank you for the opportunity to testify and will gladly answer any questions.

Senator BEGICH. Thank you very much.

Let me go to Mayor Navarre, mayor of Kenai Peninsula Borough from my State of Alaska. I was down there about a week or so ago at the Funny River fire, which, as we all know, has been a top priority, I know, for firefighting. So we appreciate Mayor Navarre, and thank you also for being a pilot here of trying to use our technology. So we will allow you to testify, and then we will open it up for questions after your testimony. Mayor Navarre.

TESTIMONY OF THE HON. MIKE NAVARRE, MAYOR, KENAI PENINSULA BOROUGH, ALASKA

Mr. NAVARRE. Thank you, Senator Begich. I appreciate your holding this hearing and for touring the area when you did and asking the right questions about the adequacy of the response and whether or not resources were available where needed and when needed. And the answer to that I think is absolutely. I was exceptionally impressed with the incident command structure and the way that there was coordination between all of the agencies as this fire was developing. We had incredibly high winds, changing wind directions and conditions. But the knowledge that the command team had of fuel sources, of fire behavior, logistics, all of the things that count when you are really reacting to an ever-changing fire dynamic was truly impressive.

The coordination between the agencies, I cannot say enough about how all of the resources and the resource agencies worked together. One of the things that I should point out is that the refuge folks were quick to order up a command team, and also had done some fire breaks between urban and wildland interface that really were critical to the way that the planning and protection of the populated areas and the structures there. So we were very fortunate.

So I want to say thanks to you and to the resources that were put toward this, and the result was that we had very few small structures, some remote cabins that were lost. Absent that, all of the residential areas were protected. The priorities were clear from the outset, that is, protection of the firefighters who were employed, also protection of land and property in the urban areas and the developed areas around the peninsula, and then looking at where the important infrastructure is, including some very high voltage lines that needed to be protected.

And I want to also talk briefly about the importance of the planning process well in advance of what we know are going to be an increasing number of wildfires, and that is, Federal resources are important to the Kenai Peninsula in a variety of ways. We had funding over a long period of time to deal with the spruce bark beetle infestation that allowed us to build a coordinated plan that we could identify where the consensus was. And where the consensus was is making sure that we enhance natural fire breaks—power lines, roads—between urban and rural or wildland areas in the event that at some point we saw a wildland fire that would threaten the developed areas.

So over a period of time, I think we got as much as about $18 million from the Federal Government, and we used that to build fire breaks, to do a Firewise program, to remove fuel sources. So I think that that is critically important.

The other thing that was important and that we also used Federal grant funding for was the borough's geographic information system. We have a very good system. We update it regularly. The last time we were able to update it with a Federal grant, doing some aerial flight to gather the data and put it into our system, was actually 2012, so we had pretty up-to-date information on where structures were, including in remote areas, and it allowed them to tap into our system and use it to know where they were going to muster their resources, where their fallbacks were. So it was an excellent planning tool for them.

So I guess that is one of the things that in looking at whether or not resources were adequate in this case, as I said, I was very impressed with the level of effort that went into this fire, the resources that were employed on the fire, the planning that went into it on a nightly basis, and then the planning that was put into place and executed on a daily basis and sometimes an hourly basis.

So I think we did have adequate resources, and one of the things that I am thrilled about was your efforts to get the drones at the University of Alaska-Fairbanks. That was something that was employed in this fire, at the end of it, to do some overflights. And I think that it is something that will be an even more increasingly valuable tool as we move forward. And as you know, Senator, the State of Alaska has incredible remote wildland areas and a lot of interface between rural and urban and small pockets of developed areas and populations. So it is critical in Alaska.

So I want to again thank you and thank the incident command team, Rob Allen, also FEMA, and the pre-planning that we had through our Office of Emergency Management and the coordination that our emergency manager did in mustering local resources to help support that effort. I think all of that, was a good example of how in part we were lucky but the reality is that there was a lot of planning that went into it well in advance of when a fire might happen, and it really worked in this case. So I think it is a good example of the right amount of resources, the right amount of expertise that is brought in from a lot of different areas around the country and around the State. So it was impressive.

Thank you.

Senator BEGICH. Thank you very much, Mayor. And just for folks here in the room, these are pictures from that fire, and it is incredible devastation that occurred. And I was down there on Monday. As Mayor Navarre talked about, some incredible resources all came to the table at the right time.

There was one thing you had mentioned, Mayor, and I want to just ask you, and I made a note here, but your borough mapping system, was that funded by the borough or was that a combination of Federal or State? Or how did you upgrade that?

Mr. NAVARRE. It is operated by the Kenai Peninsula Borough, and it is available publicly, and it has a lot of tools that the folks who are familiar with GIS systems can tap into and use to get all kinds of different vegetation mapping. There are a lot of tools that

are available on it that can be used to identify, as I said, where strategies can be employed to attack a fire like this.

And, the other thing that I should mention is—and you are aware of it, but oftentimes at the Federal level, the sheer perspective and size of this fire was huge. But in terms of the State of Alaska and even the Kenai Peninsula, it is only a small portion of our land mass.

Senator BEGICH. Thank you very much.

Jim, you might be able to answer this first question I have. When I was down there, I took a tour of some of the areas, and what I saw were these areas where they thinned out some of the trees and found natural breaks. I think the mayor described some of those areas, and you could go from the very heavy clustered area and then these thinned out areas and then in some cases a road or utility corridor. And the comments I got were, it was a raging fire, and then when it hit that thinned-out area, it dropped lower to the ground, and firefighters could attack it, manage it much quicker and control it at that point.

And they were describing to me that came from—I was expecting to hear a big number, to be honest with you, a big cost to that piece. And they said, no, that was about $175,000 out of the wildland fire fund that they were able to get a grant for to do that.

Can you tell me the status? I know that has been under pressure for many years in its financial capacity, because that is more preventive than disaster. So tell me a little bit about that fund, and is the Administration talking about looking long term at that and additional resources? And does that connect at all—and I am going to put this issue way over here for a second. I know the President has put together a proposal, I think it was $1 billion, on climate change issues and so forth, disaster management, some other things. Is that at all connected? Just a two-part question there. The impact was unbelievable, because then they showed me the area where they were unable to do it, and it just swept right across the road. It was an unbelievable difference.

Mr. HUBBARD. Mr. Chairman, as you just described, the effect of that land treatment on fire behavior is exactly right, and that is what we are after. And where we place those treatments is pretty important, too, because if we do that in combination with the community that has invested in being adapted to fire, a little more fire wise, then we have a chance of protecting that community and saving it, even when fire like this comes their way.

And most of that money is appropriated through the Forest Service, and we work through the State forestry agencies, on the private lands at least. And what happens there is the competitive process in the West with those different States proposing their highest priorities for protection and the money being allocated.

Senator BEGICH. So is that fund, that money comes out for local communities like this that get grants. Give me the sense of that. Because what I understand, it is under pressure and not as robust funding as it used to be. Can you comment on that?

Mr. HUBBARD. We try to protect that one.

Senator BEGICH. Does it need more? I am giving you a softball there. I know you probably cannot answer because the Office of

Management and Budget (OMB) probably has not told you—but feel free.

Mr. HUBBARD. Well, what I think I can say——

Senator BEGICH. Because I might jump to these two, and they will answer it.

Mr. HUBBARD. You asked if it was connected to the President's climate change proposal, and we are working with the Administration through the Department on what we might be able to propose in that regard as part of that billion.

Senator BEGICH. So maybe how to attack some of that money and maybe move it——

Mr. HUBBARD. Perhaps, but it is definitely connected to the proposal for how we finance suppression. If that were to pass or go into effect and free up for the Forest Service roughly $300 million of discretionary funding, then the appropriators, of course, control that.

Senator BEGICH. Right.

Mr. HUBBARD. But that would be our proposal, to use it this way.

Senator BEGICH. Well, let me make sure I clarify what that is, because I know some people who might be watching or later find out what we are talking about, in the past, the way your disasters were funded, where fires occur, you rob all these accounts, because we never funded it enough. Then we come back and try to fix it all, and we never really do totally.

Now the idea is—and I might be wrong about these numbers, but I know I am close. We look back 5 years, figure out about 80 percent of what that cost is, and try to fund it, so you are at least having a budget to work from so you are not robbing all these other agencies. Is that fair?

Mr. HUBBARD. That is fair.

Senator BEGICH. And I can tell you, when I said that—and I know Mayor Navarre was there when we were doing an incident press conference, and I said that. One of your employees, I think, in the middle of the press conference—I loved it. He was in the back. He jumped up, excited about the whole thing, because it sounds like that is a big piece of this puzzle that you need to get out of the way in order to fund—and this is the piece that Wyden and Crapo are working on. But as an appropriator, I think we are going to try to do this year.

Mr. HUBBARD. Yes.

Senator BEGICH. In the appropriations process. So that is a real positive for all of us. Is that a fair statement?

Mr. HUBBARD. That is a fair statement, and thank you very much.

Senator BEGICH. We like that.

Let me ask you, there was an estimate or—we know since the 1990s the amount of money for suppression has gone from about $1 billion to $3 billion, but there is a new report or some report out there that talks about we are still going to be about half a billion short in the efforts. Do you agree with that based on your analysis and what you are seeing this summer?

Mr. HUBBARD. Yes, I do. Those forecasts come from Forest Service research, and they provide them to us periodically during the year. It is based on what is going on with the forest conditions. It

is based on the drought. It is based on how the weather patterns are setting up with Pacific oscillation and ocean temperatures. It gives us an indication of what is coming our way for the season and where it might hit and what that might cost. And right now it is predicting that we will fall short.

Senator BEGICH. The comment that Mayor Navarre talked about, which was the spruce bark beetle, at least in my State, but I know Colorado has issues, the Northwest has issues. I mean, it just is a constant growing problem. For several years, I know Alaska was earmarked. We had earmarks that we were able to do this. For some reason some people in this body do not like earmarks. I do, because people I think did not understand what it was. It was not adding to the budget. It was taking from the existing budget, and it gave some discretion of how to attack these issues.

Do you think we have enough resources to go after it? I used spruce bark beetle in my State, but I know they are different in other States. Basically a beetle kill or forests that have dead kill in them, are we doing enough there? Or do you think that is an area that maybe we better be watching carefully here? Because that could be growing because of these drier temperatures and droughts that we are facing. Does that question make sense?

Mr. HUBBARD. Yes, it does.

Senator BEGICH. OK.

Mr. HUBBARD. The drier temperatures, the drought, the condition of the forest, the age of the forest, in the West it is largely a disturbance forest, and it was created by disturbance, and it is being regenerated by disturbance—fire, insect, and disease. That is going to continue on a large scale. And there are things we can do to mitigate that. We cannot stop it, but, yes, there is more that can be done to help with the impacts of it.

Senator BEGICH. Let me, if I can, to Mayor Navarre, and then I am going to go to you two in just a second here. Mayor Navarre, at this point you do not have any more Federal resources for that type of activity in the spruce bark beetle cleanup or management at this point? Or do you still have Federal resources you are still tapping into? Or is that pretty much gone? And what are you doing now to combat that issue?

Mr. NAVARRE. What did we do?

Senator BEGICH. In other words, the grant money you used to get, do you still have any of that remaining that can still be used to do some of that spruce bark beetle management? Or what are you doing now that those resources are pretty limited to manage that dead kill?

Mr. NAVARRE. Well, it actually happened last time I was mayor, from 1996 to 1999, where we identified the problem, and before that, Mayor Gilman had come to the Alaska Legislature for some funding in order to do some fire breaks in the Cooper Landing area.

When I succeeded Mayor Gilman in 1996 and flew over the entire Kenai Peninsula, I was actually shocked at the level of infestation and the potential for a huge fire, and, really, because of the different land ownerships and agency oversight and things like that, what we did initially was put a task force together that worked very well, reaching common ground on things that every-

body could agree on: natural fire breaks and enhancing them, whether they are power lines where you have a 100-foot right-of-way and trees on each side that are 200 feet tall, trying to broaden those a little bit, making sure that you clear rights-of-ways for roads a little bit further. And then perhaps as importantly as the Firewise program, defensible space, things like that, because people want to stay in their homes and protect their homes. It is their largest investment oftentimes in their entire life.

And so making plans ahead of time that put resources into those types of necessary areas so that when you have an event like this you have the ability to actually combat it on a reasonable basis and at the same time putting adequate resources to it and protecting the folks who are actually out there fighting it, as well as the urban areas.

So we still have areas that we could use additional funding for, but, we are going to go forward with that in any event, the educational process of homeowners, where they can build protections as best they can, and then making sure that our emergency operations plans are in place. The reverse 911 system in this case worked exceptionally well for pre-notifying folks, and then when there was an evacuation in two areas, we could get them out in an orderly manner. Again, those are things that are critically important in the interim between what, as I said, we know are going to be growing numbers of fires.

Senator BEGICH. Thank you very much.

Jim, I said I would have no more questions, but I have one more, and I just remembered when Mayor Navarre was talking to me. I saw this map of this utility company, I think it might be Homer Electric, but I am not sure. They had a power line going through two Federal properties, one a reserve and one not. And yet they were able to clear their power line area, so they had a clear area, all the way, and then this new designation of Federal land goes after that, and they cannot clear it. Yet, to anyone else you would not know the difference between the land except you suddenly see there is no clearing going on. And their point was part of their job, because they have to access those utility lines, is to have that area cleared. But also from a fire protection area, it is a fantastic opportunity there.

Have you run into this problem elsewhere, where you might have a different designation by a Federal agency of one land and then another designation side by side? And maybe it is only the West that has this problem. And yet, I mean, I could not believe the map. I mean, they show where they clear-cut, this strip for the power line, great, fire break, everything, utility corridor, then it just stops. But the utility corridor still keeps going with the utility line, and they are not allowed to clear this other area. But yet the fire could occur anywhere.

Do you run into this? Not to get you in trouble with any other agency, but is there something we could do here legislatively to help this problem?

Mr. HUBBARD. Yes, we run into the problem, and it is not just differences of Federal ownership. It is differences with State and private ownership. So when we get into this, it really takes everybody coming together. And different agencies have different man-

dates and different environmental clearance processes that they have to go through. But when you have a common problem such as this and you have values at risk that need to be protected, then you need to find a way of working it out together.

Senator BEGICH. I may bring you an issue then, because I just think in some of these States that have this huge swath of jurisdictional issues, especially Federal land, it seems like we should figure out this, because the comment—I mean, on the one hand, we are watching one area burn up; on the other hand, we are controlling it on another land because we did this the right way; on the other hand, the other side is just burning up because we did not do the right control. So we will followup.

Let me, if I can, to William and Kevin, thank you very much for being here. There was a recently released National Wildfire Strategy. Are either one of you familiar with that?

Mr. DOUGAN. Yes.

Senator BEGICH. OK. Can I assume that you were engaged—your organization or members of your organization might have been involved in that strategy or at least responded to the strategy?

Mr. DOUGAN. Our organization was not directly engaged in that.

Senator BEGICH. OK.

Mr. DOUGAN. We certainly have had input, over the years, talking about fire management issues and about the more strategic picture with how we manage our landscapes across the country.

Senator BEGICH. And why I bring this up is Kevin had a comment about a blue ribbon committee, and it seemed—one thing I am always nervous about, to be frank with you, is another committee around this place, because we will committee stuff to death. You had mentioned, as a matter of fact, the IG report, which is a question I am going to ask my staff to say, OK, that IG report came out, what have we done, what have we not done? Because as we have found with the VA, when you have IG reports, you actually should respond to them. And this might be the same thing.

But do you think this strategy could morph into where we engage stakeholders—and this, again, for both of you—to engage stakeholders to say, look, we have this strategy, is it the right strategy? What do we need to do? What is the action plan that goes with the strategy to move us forward in a preventive way as well as a response in a sense? Can you respond to that?

Mr. DOUGAN. Sure. I think the national strategy has great utility in terms of being a very strategic sort of broad-based document to get us to thinking about how we engage each other across jurisdictional boundaries, across geopolitical boundaries, across other regional boundaries, because that is part of the problem that we have in this country where——

Senator BEGICH. Some of those land issues that—they are jurisdictional.

Mr. DOUGAN. Yes, absolutely they are, and it becomes very difficult and challenging to try to deal with fire across those boundaries, because you have to understand fire does not respect geopolitical boundaries or other jurisdictional boundaries.

Senator BEGICH. We saw that on Kenai. They really do not.

Mr. DOUGAN. Yes. And so the challenge for us as a country is to figure out how can we engage the stakeholders and get people to

understand that this is not just a Federal issue, this is not just a State issue, this is not just a local issue. This is a national issue that everybody, has skin in the game on.

Senator BEGICH. A good example of that, I think $3 billion plus taxpayer money.

Mr. DOUGAN. Absolutely.

Senator BEGICH. And I think the data point that, Jim, you gave, which I thought was interesting, 98 percent of those, you get right at them, but it is that 2 percent that then add to 30 percent of the costs. And those are ones where we may not be as aggressive as we could be. And so I thought that was an interesting quote.

I am going to jump back and forth a little bit, but you heard the commentary here, because I like the idea that we attack this issue in the sense of what do we need to do, because there are clearly changes in the environment. For Alaska to have a fire of that magnitude in May is unheard of. And we were very fortunate where it was and how quickly they could control it on the back end, because it could have to a whole bunch of businesses, homes, property, lives. And it seems like these little things of prevention could actually—in some cases, we lucked out on one. It jumped over a river. But then it hit a swamp. Thank God the swamp was there, because then it moved a different direction. The winds helped us. But then those winds are moving left and right literally in a 24-hour cycle and aggressively moving that fire.

Give me your thought on this strategy, and can it be morphed into this idea you have that, given these stakeholders and just going after this?

Mr. O'CONNOR. Well, let me first say as an old firefighter, I am not much on commissions or meetings, either. [Laughter.]

Senator BEGICH. I know a lot of firefighters, and you fit that mold. I could tell you right now, hear that voice.

Mr. O'CONNOR. But with respect to this issue, first, I do want to laud what the National Action Plan has done. I agree with Bill. I think it has an awful lot of utility. And the Wildland Fire Leadership Council I think is doing a very good job. The International Association is not part of that, but this is not a parochial issue for us. This is such a complicated issue. You can get firefighters in a room, and you can come to consensus. On the ground, the coordination between Federal, State, and local assets is tremendous. But it is more than just a fire problem. And in my oral testimony, I used the term "holistic." And by that I mean if you actually read the Action Plan, which I have in my hand and I think is a great document, all it talks about throughout the document is bringing people outside the Fire Service, other stakeholders, to the table. And, quite frankly, efforts were undertaken several years ago by the congressional Fire Service Institute, the International Code Council on trying to bring people together, and they were not successful. Why? Because, frankly, nobody had the hammer to get all the stakeholders sitting at a table, the home builders, the code enforcement folks, all of these people who were not part of this effort, but, frankly, who need to be involved in a larger dialogue as it relates to this problem, because as everyone testified, it is going to be a problem for many years.

And my analogy to "America Burning" was simply made to draw that point, I mean, if you look at the history there, and it worked very effectively.

Senator BEGICH. Basically what happened there was Congress got involved and said, look——

Mr. O'CONNOR. That is right.

Senator BEGICH [continuing]. We see this as a national issue, we are not interested in, one group taking the lead or another group. We just want to have a strategy that has an action plan that we can look at and determine if we can fund it, help it, make it happen from the State, local, private, Federal level. That is what happened there.

Mr. O'CONNOR. That is absolutely correct. And even though I do have an aversion to those type of commissions, I really do not see any other entity, aside from the Federal Government, that can really force people to the table to have that conversation.

Senator BEGICH. William, do you agree with that?

Mr. DOUGAN. Yes, I think the convener has to be the Federal Government. And I think we need to start thinking outside the box of, what do we need to do, what are the interests that we need to satisfy to get these people to the table? For some it may be we might need to consider some incentive program such as, if you participate in this program and do certain pre-treatments to your land, you could get a tax break, for example.

Senator BEGICH. Got you. That is an interesting idea.

Mr. DOUGAN. Because, again, as you described on the Kenai with the utility corridor, if we have people that are participating or landowners that are participating and other landowners that are not, that is really not going to solve the big problem.

Senator BEGICH. Right. What was more amazing about that is there were two Federal agencies, one wanting to, one not. That is something we definitely have control over in this body.

Let me ask, you had said something that I thought also—two things. One, I think in your written testimony it says,". . . we are still doing business the old way and it is not working." And then you also talked in your oral presentation about apprenticeship programs, which I am always intrigued about apprenticeship programs. We used them quite a bit when I was mayor of Anchorage. And obviously as a Senator I use internship programs all the time. I was intrigued by that.

When you say it is business as usual, not changing much, can you give me a sense of what are those innovations that we need to be doing? Which I do agree with you on the issue of the temporary. We had the same problem when I was mayor of Anchorage. We had great parks and rec people came back every single summer. They had probably 20 years doing it. But because of the way the system worked, someone could come in that has been working for the city full-time, first-year employee, and walk in and have a better chance of getting that job than the temporary. We changed that because we thought that was not right, because if you have 20 years working this seasonally, the odds are you are pretty good at it, because we would not hire you back seasonally for 20 years.

So besides that, which, obviously I have introduced legislation to fix that, we think there are a lot of interesting ideas here. Tell me

what you are thinking here when you say "the old way." And maybe I will turn to you, too, Kevin.

Mr. DOUGAN. Well, I mean, another good example is the funding issue. How do we pay for fire suppression? I mean, historically Federal agencies have basically been given a budget of, X million dollars for fire suppression, and when the money runs out——

Senator BEGICH. We rob everywhere.

Mr. DOUGAN. Yes, the agency is forced to look elsewhere in its budget to come up—because, again, we cannot—fire is unique, relatively speaking——

Senator BEGICH. Right.

Mr. DOUGAN [continuing]. In terms of an agency's program. We cannot just walk away and fold our tents up and leave.

Senator BEGICH. Again, so you support the concept of the Wyden-Crapo bill.

Mr. DOUGAN. Absolutely.

Senator BEGICH. And what we are doing in the Appropriations Committee, which I feel very confident about we are moving on the right path here when we get the Interior budget bill, which will be—I am hoping that—we are doing two bills a week now. We just did two more today, we will do two more next week in the full Committee. I was somewhat shocked when I got here and found out we were funding at about a 20-percent level or so, and I am, like, well, we know the average, we know what is going to happen. We would hope not, right? Everyone hopes we do not spend anything in disaster firefighting. But that is not real. But maybe this approach is a better one. So that is a new approach that you think would be huge?

Mr. DOUGAN. Yes, I think that is going to ensure that the agency has the funds in the programs that help it to accomplish its mission, whether those programs are pre-treatment—instead of robbing money from pre-treating forest fuels, they will have a full budget in that area, and we can continue to do some of these projects to mitigate future fire occurrences and hopefully allow us to catch these fires when they are small before they escape and become these huge catastrophes.

Senator BEGICH. Thank you. Kevin.

Mr. O'CONNOR. Well, I absolutely concur. I mean, we have to have a different mentality. Years ago, wildland fires were largely contained in areas that were simply that. They were wildland. They were massive fires, but part of healthy forest is fire is a natural phenomenon and they burn. And some of the mentality was you allow it to burn. And I am certainly not qualified from an environmental standpoint to comment on that, but from a firefighting standpoint, with the development of wildland-urban interface, we really have to change our view on how to do that.

Now, when you talk to the folks in terms of my membership, which is municipal—we do not represent the majority of Federal wildland folks, but almost all of our people west of the Mississippi are engaged in wildland firefighting.

Senator BEGICH. Right.

Mr. O'CONNOR. The coordination on the ground is great. There are standard mutual aid agreements where it is automatic. If, for example, in California, we have a California Department of For-

estry Station adjacent to Federal lands; they immediately respond and in many cases are able to mitigate the event before Federal resources are actually there. Conversely, the same thing happens when there is a Federal station near a State land or a privately held land. Their radio systems are very compatible. There is a unified command structure, and it all works very well.

However, what we are hearing from our folks is that there is an issue—and it gets back to money—on timely repayments for local assets when they are assisting the Federal Government. And this is something that particularly in California some municipalities and counties are actually eschewing a little bit mutual aid agreements because they are concerned about the repayment. And it gets back to basically money.

The same thing applies with training. I agree with Bill 100 percent. Training is vitally important. But when you have a municipal fire department that has to train its people on structural response, EMS, hazardous material, clearly there is only so much money in a pot. And one of the things that we want to ensure, the Red Card, the qualified certification versus the trained certification, we want to make sure that every one of our firefighters who is going to be exposed to a wildland fire is going to be, No. 1, safe and, No. 2, effective on the fire line. And there is no substitute for training, and, unfortunately, that costs money.

Senator BEGICH. Let me ask one last question, and, again, I want to thank the whole panel here. This is helpful. I know in the Funny River fire, I think—and, Mayor Navarre, correct me if I am wrong. I may not get this right. Or, Jim, you might know this. I think we had to bring in two Canadian water tankers, if I remember right, in addition to our crew. Am I right on that, Mayor Navarre? I think that is what happened down there?

Mr. NAVARRE. That is what happened. They brought in a couple of Black Hawk helicopters, also, and they had planes that were also deploying retardant in areas that it would be effective on the particular fuel sources.

Senator BEGICH. Here is my general question on that. I think, Jim, you laid out a really good inventory, kind of our mutual agreements. I am assuming that was one of them, our international agreement with Canada, especially Alaska and probably the States that border from the lower 48. On the equipment that we have, that we operate or that we have relationships with, do we believe that we have good resources for their continued maintenance and upgrade? Or is that an area that we have to really look at here long term to make sure that we are not—because let us assume, for example, this season is a busy season again. It is the argument you might make for a guy doing aviation that the more hours you put on that plane, the more wear and tear it takes, and, therefore, the capacity for it to operate longer term diminishes. Do you see that as an issue that we need to really re-examine because these fires are more severe and happening in longer spreads of time, meaning the season is longer, I should say? Is that something we have to look at, or is that something you are looking at?

Mr. HUBBARD. Both. We are looking at it; we have made some strides. We have moved from a primary fleet of 1950 vintage aircraft that are getting tired to a next-generation fleet. But we are

just getting into that, so there is a ways to go on making sure we have updated our aviation assets, especially the large air tanker portion of that. And I would say the progress is good, but we are not there.

Senator BEGICH. And we did something last year, if I remember this right, through the national defense authorization bill, I think we got 21.7 went in your direction and 14 went to the Coast Guard, if I remember this correctly.

Mr. HUBBARD. That is correct.

Senator BEGICH. I hate to use the word, but "surplus" planes from the military that we—who knows what they were going to do with them. But they saw an opportunity, right? And we were able to mobilize them for the Forest Service as well as for the U.S. Coast Guard.

Mr. HUBBARD. Yes, that is correct. That was a welcome addition to the fleet. And we do not have those yet, but we will, and we will start phasing them in next year. So that was seven C–130H's, and we also got 15 Sherpa aircraft for smokejumper platforms.

Senator BEGICH. Excellent. I know we worked on that from our office with Senator McCain, because we thought this was a great win-win not only for the Forest Service but the Coast Guard for equipment that is desperately needed. So we were happy to do that.

Let me end there. I think the record will stay open for 14 days for other Committee comments and/or questions. I want to thank the full panel here, especially Mayor Navarre all the way from Alaska via teleconference here or Skype or whatever we ended up here with. But you are here, which is good. We appreciate that, especially because you are dealing with a real live issue on the ground. And we thank the panel here, and thank you for your written testimony, because I know there are a lot of suggestions that some of you have placed in there that we will absolutely examine. This is the Committee that deals with emergency disaster, first responders, FEMA, and others. This is an important issue, and I have a feeling, as you described very well, Mr. Hubbard, that the summer is just beginning, and we are already seeing a lot of issues.

So thank you all very much. The meeting is adjourned, and the record will be open for 14 days.

Mr. NAVARRE. Thank you.

[Whereupon, at 3:43 p.m., the Subcommittee was adjourned.]

APPENDIX

TESTIMONY OF

WILLIAM R. DOUGAN

NATIONAL PRESIDENT
OF
THE NATIONAL FEDERATION OF FEDERAL EMPLOYEES

BEFORE

SUBCOMMITTEE ON EMERGENCY MANAGEMENT,
INTERGOVERNMENTAL RELATIONS, AND
THE DISTRICT OF COLUMBIA

U.S. SENATE COMMITTEE ON HOMELAND SECURITY
AND GOVERNMENTAL AFFAIRS

REGARDING

WILDFIRES: ASSESSING FIRST RESPONDER TRAINING AND CAPABILITIES

JUNE 5, 2014

Thank you, Chairman Begich and members of the Subcommittee for inviting me to testify today. I am here on behalf of the National Federation of Federal Employees (NFFE) and the 110,000 federal workers we represent at 40 different agencies throughout the federal government, including approximately 20,000 in the U.S. Forest Service.

I began my federal career in 1976 as a temporary employee with the National Park Service. I then worked three years as a temporary employee for the Forest Service as a firefighter and tree planter before becoming a permanent federal employee in 1979. I worked as a forester on the Siuslaw and Rogue River National Forests in Oregon and spent the last 16 years of my 31-year federal career at the Tongass National Forest in Sitka, Alaska. For 22 of my 31 years in federal service I fought wildfires, serving in a variety of fire positions, including: firefighter, crew boss, incident commander, and other fire positions. While working in Alaska, I served as a crew boss fighting wildfires in-state as well as taking Alaskan crews down to the lower 48 states.

I know what it is like to be in the thick of a raging wildfire. I know what it is like to be out with your crew trying to tame a blaze and knowing that a small shift in the wind pattern could put your life and the lives of your crew in jeopardy. I also know what it is like to come home from several weeks of working on dangerous wildfires, walking in the front door, and seeing the look of utter relief when your wife and children know you have come home safe.

Firefighting is a dangerous business, and when you are out there, the only thing standing between you and trouble is your equipment and the brave men and women with you on the fire-line. That is why it is so critically important that we do everything possible to give these dedicated firefighters the training and resources they need to have success, both in completing the mission and ensuring they come home safe at the end of the day.

There is little doubt that wildfires are a bigger problem in this country than they were a decade ago. Drought and other factors have contributed to creating hotter, drier, and longer fire seasons, on average two months longer than in the previous decade. Six of the worst fire seasons since 1960 have occurred since 2000. This is not an anomaly. This is the new normal. Unfortunately, we are still doing business the old way and it is not working.

In some cases, the problems are complex and the answers are not easy to come by. However, in other cases, the answer is straightforward and the time for it to be implemented is long-overdue.

TRAINING CHALLENGES

In Audit Report 08601-54-SF (March, 2010) on the Forest Service's succession planning for firefighting, the U.S. Department of Agriculture (USDA) Office of Inspector General (USDA-OIG) noted that training and other challenges were "setting the stage for future shortages of qualified firefighters." They noted that 64% of essential fire command personnel would be eligible to retire in 2014, increasing to 86% by 2019. They also noted that there were only 5,199 trainees for 11,129 critical firefighting positions.

Consistency in training across agencies is essential. In any discussion of the challenges we face, we must first acknowledge the tremendous work of wildland firefighting agencies to improve operational interagency cooperation across jurisdictional boundaries. The development of a consistent certification and training system administered by the National Wildfire Coordinating Group (NWCG) is an outstanding achievement. However, jurisdictional and agency cultural barriers still exist.

The purpose of the Wildland Firefighter Apprenticeship Program (WFAP) is to take this consistency in training to the next level. NFFE is proud to be a founding partner in this interagency agreement developed to create the WFAP. The WFAP is a national interagency program registered through the U.S. Department of Labor and in partnership with the major federal land management agencies. The WFAP is designed to be complementary to the purpose of the NWCG regarding consistency in classroom training and certification. It was established to enhance consistency and a joint operations atmosphere between the federal agencies in both the classroom delivery and on-the-job training experiences of their employees initially entering career positions as firefighters. Unfortunately, the WFAP has been under-utilized and I am hearing reports that firefighting agencies may be turning away from it. This would be a step away from consistency, and a step in the wrong direction.

Another area of concern regarding training is simply ensuring that funding to support training and "trainee assignments" (in addition to classroom training, firefighters must work alongside fully certified personnel before achieving full certification to serve in a given position) is reaching the field in an adequate and timely way. This is not happening as consistently as it needs to. Here are a few examples of how this ongoing problem is occurring:

- An engineer on a fire engine crew in Southern California reports that primary fire personnel on his forest are unable to attend training classes that are only offered out-of-state and unable to go on trainee assignments because of lack of funding.

- A purchasing agent in Arizona reports she just received the fiscal year 2014 (FY14) budget in March, but she was recently informed that the cut-off date for significant procurements (which is normally August 30) has been moved up to June 15 because of the anticipated need to transfer funds to cover fire suppression costs (this "fire borrowing" is discussed later in this testimony). In other words, for 8-9 months of FY14, there is substantial uncertainty in the field about availability of funds.

- An interagency dispatch center manager describes the outcome of budget uncertainty on training decisions as follows: "The timing of the budget has a huge impact on our training. Training must typically be scheduled prior to getting the budget, but our managers don't know how much money we will have for training. Then, when we do get the budget, we may have training money but it is too late to get into classes. Plus, fire season has started and our firefighters are in the field fighting fire. This happens every year."

As even this brief description illustrates, the training challenge is complex and infringes on other topics (*e.g.*, funding). However, Congress can improve the situation by doing the following:

1. Exercising appropriate oversight to ensure that (a) the action items developed as a result of USDA-OIG Audit Report 08601-54-SF are properly implemented and (b) the WFAP is used to its fullest potential.

2. Appropriating funds in a timely fashion so that funded training opportunities are not scuttled by budgetary uncertainty.

RETENTION CHALLENGES AND THE LAND MANAGEMENT WORKFORCE FLEXIBILITY ACT

Generating highly trained and exceptionally skilled firefighters is an important part of the capacity puzzle. An equally important part is retaining those valuable employees in whom so much has been invested. Unfortunately, the attrition rate for wildland firefighters is alarmingly high. There are a number of reasons for this. I would like to focus on one that is easy to fix.

The career path of a wildland firefighter begins on the fire line. Theory is learned in NWCG-sponsored classes. Experience is hard-earned in the smoke and ashes of the fire line. However, the career path of seasonal firefighters is blocked by flawed and dysfunctional federal regulations. The good news is this problem may be simply addressed, at little to no cost, by simple legislation to reform the offending regulations.

Because of the seasonal nature of the job, wildland firefighting positions are typically filled using seasonal appointments. Typically, leadership or more technical positions are filled using the permanent seasonal appointment authority under 5 CFR 340.402. These firefighters' tours are six months or greater, depending on the need during a particular season. These positions come with the same benefits as full-time permanent positions, except they are prorated based on the length of the tour.

Entry level firefighting positions, and on some units intermediate positions, are typically filled using the temporary seasonal authority under 5 CFR, Part 316, Subpart D. These firefighters' tours are limited to six months, at which point they must be sent home regardless of whether or not fires are still raging. These positions come with very limited benefits and no job security – firefighters are terminated at the end of their tour and may or may not be reappointed in subsequent seasons.

To give one example, the structure of a typical 20-person hotshot crew is shown below:

- 1 GS-9 superintendent
- 1-2 GS-8 assistant superintendents (also called captains, foremen)
- 2-3 GS-6/7 squad leaders
- 3 GS-5 senior firefighters
- 12 GS-4 and/or GS-3 firefighters

Typically, the GS-3 and GS-4 firefighters are hired under the temporary authority and the superintendents and assistant superintendents under the permanent seasonal authority. Some senior firefighters and squad leaders are hired under one authority, some under the other.

Many firefighters accept their initial temporary appointments as a "foot in the door." Many return to their positions, year after year, for many seasons, acquiring in the process valuable training and experience. However, those firefighters looking to advance their careers face a barrier that has nothing to do with their skills. They face the fact that current personnel regulations do not credit their service, regardless of how long, as qualifying for acquiring "competitive status." Without competitive status, they are barred from competing for jobs under the merit promotion procedures, authorized at 5 CFR Part 335, that are available to other federal employees. Many skilled firefighters eventually leave, taking their valuable skills with them.

The flexibility to fill positions from current employees under merit promotion, or from among civilian applicants under the competitive process of 5 USC Chapter 33, is a fundamental and necessary flexibility. This flexibility applies with respect to the roughly 2.7 million other federal employees. Yet, in spite of the fact that the kind of experience necessary to make a good hotshot superintendent is earned in the smoke and ashes, this flexibility does not apply with respect to seasonal wildland firefighters. This foolish regulation must be changed.

The Land Management Workforce Flexibility Act (LMWFA, S. 1120 and H.R. 533), would address this inequity. Like other federal employees, the temporary employees to whom the bill would apply would have acquired their positions under the normal competitive process. The LMWFA would give them the same opportunity to advance their careers under merit promotion procedures.

The LMWFA would reduce attrition caused by lack of a realistic career path. It would also enhance the pool of highly qualified applicants for technical and leadership positions throughout the fire organization. It would foster the development of a safer, more experienced workforce. NFFE strongly urge its passage.

There is, however, a way in which the bill may be significantly improved. We recommend it be amended to provide experienced temporary seasonal firefighters with a waiver of the maximum age for entry into career firefighting positions. Currently, under regulations that treat them the same as off-the-street applicants who have never fought fire, highly trained, experienced, and valuable temporary seasonal firefighters become ineligible for permanent firefighting jobs when they reach age 37. While it makes sense to limit the entry age of inexperienced applicants into the profession, it does not make sense to prevent seasonal firefighters with decades of experience from the opportunity to compete for entry into the career ranks. These are exactly the kinds of individuals we need in fire leadership positions.

FUNDING CHALLENGES AND THE WILDFIRE DISASTER FUNDING ACT

Strong winds causing damage to communities happens to some degree every day in this country. Typically, wind-related damage is limited to a small area, and emergency responses to these incidents are generally provided by local resources and personnel. However, every so often a larger event occurs, such as hurricanes, which can overwhelm local or even regional resources. These significantly bigger events can require a national response.

Similarly, roughly 99 percent of wildfires are local events that are handled by local resources and personnel. However, some fires escape initial attack and become catastrophic events that overwhelm local or even regional resources. Although only approximately one percent of fires become catastrophic wildfires, on average they account for roughly 30 percent of the cost of suppression.

Responses to catastrophic wildfire events, like responses to hurricanes, are national responses. Logically, the funding mechanism should be similar. However, because of nothing more than a historical happenstance, responses to hurricanes and wildfires are not funded the same way. Unlike the Federal Emergency Management Agency (FEMA) and other federal agencies that respond to national emergencies, Interior-funded agencies must pay for fire suppression using discretionary funding. With the occurrence and severity of wildfires increasing, the portion of the Forest Service discretionary budget that goes to fire suppression and preparedness has increased from 16 percent a decade ago to 45 percent today.

The substantial expense of fighting wildfires often exceeds the funds appropriated for wildfire suppression, an outcome not expected to change in the coming years. When this happens, the U.S. Forest Service and the Department of the Interior (DOI) transfer funds from other programs into firefighting accounts to cover the shortfall. This so-called "fire borrowing" results in cancellations and delays in the agency's on-the-ground program of work. To make matters worse, these transfers tend to occur late in the fiscal year, at the highpoint of the field season, when project execution is ready to occur. The Forest Service and DOI are forced to abruptly halt critical projects to provide funds for wildfire suppression. Ironically, some of the cancelled projects are those designed to reduce the frequency and severity of catastrophic wildfires. Agencies end up robbing Peter to pay Paul, even though by doing so they know they are increasing what they'll have to pay Paul in the future. They are forced into this scenario by an illogical funding structure that is unlike that of all other emergency response activities.

To address this problem, NFFE strongly urges Congress to pass the Wildfire Disaster Funding Act (WDFA, S. 1875 and H.R. 3992). The WDFA would provide "additional new budget authority" as the amount specified in an appropriations Act for a fiscal year to pay for wildfire suppression operations, but only to the extent such authority exceeds 70 percent of the average costs for wildfire suppression operations over the previous 10 years. This would leave intact the way funding is provided for handling 99 percent of wildfires, but cap adjustments would deal with the unpredictable catastrophic events. The WDFA would not use FEMA funding and would not affect FEMA's Disaster Relief Fund. It would not add to discretionary spending. It would prevent the "fire borrowing" that has decimated land management agencies in recent years and is otherwise poised to increase.

FUNDING CHALLENGES – MANAGING THE LAND

When it comes to the cost of wildfires on communities, the actual cost of fighting the wildfires, while substantial, is only the tip of the iceberg. A few years ago, the Western Forestry Leadership Coalition published a study entitled, "The True Cost of Wildfire in the Western U.S." For six large fires, the report looked at costs other than just suppression costs, in order to get a

better handle on the true cost of these events. True costs ranged from double the suppression cost to 29 times its cost. On average, the true cost exceeded the suppression cost by a factor of 11.

Unhealthy forests substantially increase the risk of catastrophic wildfires. Just looking at the economic bottom line, treatment and restoration as measures to reduce the risk of catastrophic wildfires is cost effective. For example, an April, 2014 study by the Forest Service, Nature Conservancy, and Sierra Nevada Conservancy showed that, for fire-adapted forested watersheds of the Sierra Nevada and the Western United States like the Upper Mokelumne Watershed, treatment costs were one-half to one-third of the cost of suppression.

It does not take a Ph.D. in fire ecology to understand this point. I can assure you that firefighters on the front lines understand it even better. In preparing for this testimony, we specifically reached out to some of our members who are firefighters on the 9,400 acre 100 Mile Creek Fire in Alaska for their thoughts. This is from a front-line firefighter, sent from the field on his iPhone:

> "Being proactive instead of reactive when it comes to slowing and stopping fires is what needs to happen. We are failing by not focusing on the real problem enough, which is defensible spacing around homes and communities. A lot of jobs could be created and funded if more money was set aside solely for thinning out the forests. When these fuel breaks are created and maintained the threat and need for huge suppression efforts and costs is reduced. Commercial logging and biomass utilization projects can and should come in to play here as well... Successes such as the fuel breaks around the Kenai National Wildlife Refuge during the Funny River Fire... need to be broadcast and showcased to the public."

And these observations came from an Alaskan fire manager:

> "In Alaska, we do have a well-constructed, tactical plan to deal with fires. But, with the weather changing to drier conditions, human error, lightening, campfires, burn barrels, etc., wildland fires are on the increase. I see the issue as two-fold: 1) We have let forests get into a state of overgrowth and decay, thereby causing wildland fire occurrences to increase in recent years. More equipment and more thinning of the forests may decrease the number of fires in a season, as well as, allow for larger areas to be treated. 2) There is an increased number of people that are moving into wildland areas now, which has increased the number of wildfires in these remote areas. In Alaska, we fight to put the fires out immediately, we address the hazardous fuels, but sometimes forests are allowed to grow into a dangerous overgrowth causing a hazardous situation. We address the hazardous overgrowth to the best of our ability during the season."

We face enormous challenges. Many of our forests are unhealthy. Even with passage of the WDFA and the end of "fire borrowing," resources committed to prevention are not adequate for the task at hand. Unless we prioritize restoration of forest health and preventative treatments to decrease the risk to dwellings and other structures in the wildland-urban interface, preparedness and suppression costs will continue to rise.

CONCLUSION

I mentioned at the beginning of my testimony that some answers were straightforward. The answer to how to fund catastrophic wildfire is the WDFA (S. 1875). And a necessary part of the answer to improving the retention and career advancement of trained and experienced firefighters is the LMWFA (S. 1120). It is time for Congress to take action to provide the resources and the flexibility necessary to protect communities across our nation from wildfire. These reforms cannot wait until next year. They need to be acted on immediately.

I appreciate the Subcommittee's decision to hold a hearing on this matter and I thank you for the opportunity to provide testimony.

INTERNATIONAL ASSOCIATION OF FIRE FIGHTERS

Statement of

MR. KEVIN B. O'CONNOR
ASSISTANT TO THE GENERAL PRESIDENT

before the

SUBCOMMITTEE ON EMERGENCY MANAGEMENT,
INTERGOVERNMENTAL RELATIONS AND THE
DISTRICT OF COLUMBIA
UNITED STATES SENATE

on

WILDFIRES: ASSESSING FIRST RESPONDER TRAINING
AND CAPABILITIES

JUNE 5, 2014

Good afternoon Chairman Begich, Ranking Member Paul, and distinguished members of the Subcommittee. Thank you for the opportunity to testify before you today. My name is Kevin O'Connor and I serve as Assistant to the General President for the International Association of Fire Fighters (IAFF). I offer today's testimony on behalf of IAFF General President Harold Schaitberger and the 300,000 professional fire fighters and emergency medical personnel who comprise our organization.

In recent years, wildland fires have increased in both frequency and intensity, posing a significant threat to life and property across much of the United States. From 2003 – 2012, in excess of 17 million acres have been scorched by wildfires, fires which claimed the lives of over 300 civilians and fire fighters, destroyed 34,000 homes and resulted in insurance claims in excess of $70 billion. The numerous fires currently threatening Alaska and its citizens are only the most recent example of a problem which is expected to grow throughout the United States in the coming years.

Mr. Chairman, I testify today not only as a representative of the IAFF, but as a former Baltimore County fire fighter. I am not qualified to opine on the cause of increased wildfire activity. No doubt, changes in climate, population growth and development into the wildland-urban interface contribute to the wildfire threat, but regardless of its root cause, the scourge of wildfires has become epidemic and will continue to imperil our communities and first responders if we do not act.

Improved Coordination

As the primary agencies responsible for managing wildfires at the federal level, the Forest Service and several agencies within the Department of the Interior are uniquely positioned to make deep inroads into the wildfire problem. Unfortunately, as wildfires and the communities they threaten have evolved, the federal government has not. The Forest Service and DOI are hampered by an outdated philosophy focused on land management, which, while appropriate for the wildfire problem of thirty or forty years ago, is simply insufficient to face today's challenges.

The starkest evidence of this fact is that the Forest Service. Fire and Aviation Management has routinely accounted for approximately half of the USFS's total expenditures. Yet, the Director who manages fire fighting operations is not part of senior management. Conversely, within DHS by comparison, the role of the FEMA Director and even the subordinate position of US Fire Administrator hold far more prominence. The stature and authority of the FAAM Director should certainly be elevated. In our view, it should be at the same level of the Chief Forester.

That said, we believe the beginnings of USFS's evolution are starting to coalesce. Congress recognized the importance of overhauling wildland fire management in writing the FLAME Act, which mandated the National Cohesive Wildland Fire Management Strategy. This strategy, recently transmitted to Congress, establishes a national vision for wildland fire management which includes, among other things, recommendations on providing an effective and efficient wildland response. While we applaud the Congress and the stakeholders for its efforts in devising the Strategy and believe it provides a good start to managing the nation's fire problem, we believe it does not go far enough.

In the 1960s and 70s, American cities were blighted by an epidemic of arson and fire deaths, analogous to the issues surrounding wildland fires today. To address the urban fire crisis, President Nixon appointed a large and diverse group to study and make recommendations on the problem of urban fire loss. In 1973, the National Commission on Fire Prevention and Control issued its landmark report "America Burning." Over forty years late, the fire service community recognizes the lasting impact of the document – its conclusions and recommendations are frequently referenced, and have made a significant difference in combating the urban fire problem.

We believe now is the time for the federal government to take a similar approach to the wildland fire problem. More than a dozen federal agencies and coordinating organizations, state and local governments, the fire service, industry, code enforcement agencies, insurance companies, and scores of other entities have a direct interest in combating wildland fires. Close cooperation and coordination among all stakeholders is indispensible to effectively combat wildland fires. Although the aforementioned National Strategy brought together many of the appropriate governmental and fire stakeholders, the wildfire problem has yet to be addressed with all involved parties at the table.

To that end, we propose the establishment of a Blue Ribbon Commission, tasked with undertaking a comprehensive analysis of the issues associated with wildland fires and make appropriate recommendations to address such issues. Although we have repeatedly implored the Administration to establish such a Commission, incredulously, they have yet to act. The federal government is the only entity that can properly unify all stakeholders to analyze the plethora of issues associated with wildland fires, and we implore them to take action on this common-sense recommendation.

Enhancing Fire Fighter Training

As the Committee is acutely aware, wildland fire fighting is not the exclusive purview of the federal government. State and local fire fighters supplement and complement federal fire fighting efforts. During the annual fire season, which is steadily growing in duration, structural fire fighters are often called upon to fight wildland fires, but few are adequately trained for the task.

It is safe to say that west of the Mississippi and in the southeast that the vast majority of fire fighters will ultimately be called upon to fight a wildfire. We see wildland fires in almost every state.

I myself fought a week long marsh and forest fire in Eastern Baltimore County during my tenure as a structural fire fighter. Certainly, it was an anomaly and I am not expert in wildland fire fighting. However, I was struck at the significant difference between the two jobs. Operations, length of deployment, physical exertion and outcome expectations all varied from what I was accustomed to as a structural fire fighter.

Some state and local fire fighters are trained and certified by the state to respond to wildland fires, but often, structural fire fighters with no such training will be required to respond to a local wildfire. This is especially true as we continue to expand the wildland-urban interface. Unfortunately, local fire

departments often lack sufficient resources to adequately train their personnel in everyday fire fighting tasks, much less provide them the specialized training required to fight a wildfire.

Federal, state and local governments currently spend an excess of $4.5 billion annually to combat wildfire, an amount which will no doubt increase. Providing training to local fire fighters in areas which are at high-risk for wildfire would allow for a more effective and efficient response. We propose the federal government establish a pilot program to train local fire fighters in high-risk areas. Such cooperation between the federal and local governments will help deter the spread of wildfire on both federal and non-federal lands, saving significant funds in the process.

The IAFF firmly believes fire fighting is an inherently governmental function. When the federal government requires outside assistance to battle wild land fires, it should be standard policy as a default to contract with the state agency or local government that has jurisdiction for fire fighting in the impacted area.

In the event private contractors are required, we must also ensure that those private entities conducting wildfire management operations are well-trained. The private contractors with whom federal, state and local agencies contract often vary widely in training, qualifications and ability. We propose that such contractors be held to the same standards and qualifications as are the fire fighting employees of the respective governmental agency. This not only makes sense from an operational point of view, it provides for a better, and safer, response for all involved.

Ensuring Fire Fighter Health and Safety

As we endeavor to manage wildfires to better protect lives and property, we must also work to better protect the health and safety of the men and women tasked with the difficult job of fighting such fires.

Not quite one year ago, nineteen brave wildland fire fighters, elite members of the highly trained Granite Mountain Hot Shots team and proud members of the United Yavapai Fire Fighters Association, Prescott Chapter Local 3066 died in the line of duty battling the Yarnell Hill fire. The nineteen line-of-duty deaths represented the greatest loss of life of professional fire fighters on a single incident since 9/11.

These tragic deaths, and indeed, the death or injury of any wildland fire fighter, should give us pause. The job of a wildland fire fighter is one of the most physically taxing, emotionally draining, and dangerous jobs there is. The job of a wildland fire fighter is very different from that of a structural fire fighter. And although we know much about the science of protecting structural fire fighters, we are only beginning to examine the impact wildland fire fighting has on the human body, and how to better protect our wildland fire fighters. Historically, a myriad of federal agencies have provided funded and partnered with other stakeholders to study fire fighter safety and health issues including self-contained breathing apparatus, personal protective clothing, safety equipment, apparatus specification, staffing standards, operation efficiencies, the impact of smoke and toxins of fire fighters and other related issues.

Unfortunately, the same commitment and attention has not been provided to the safety and health of wildland fire fighters. Unlike their municipal counterparts, wildland fire fighters are on-scene for days, even weeks at a time, trudging through rough terrain, battling heat and smoke and physically carrying up to 100 pounds of supplies and equipment. We know that the stress induced on the human body in this type of environment can cause significant cognitive, physical, performance and behavioral reactions which can put a fire fighter's safety and health, and that of his coworkers, at risk.

As the nation's leading experts on the topic of fire fighter health and safety, the IAFF is uniquely positioned to spearhead and coordinate research relating to the health and safety of wildland fire fighters and develop measures to reduce their stress load. Good work on these issues has already started. Researchers at San Diego State University, for example, have utilized federal funding to evaluate ensemble protective clothing worn by wildland fire fighters. More recently, preliminary funding from the Department of Agriculture has permitted the University to begin studying the effect of crew size on fire fighter efficiency and safety. If we wish to prevent wildland fire fighter death and injury, it is incumbent that we continue this type of research. We encourage the federal government to continue its investment in these valuable efforts.

Funding Challenges

Lastly, I would be remiss if I did not discuss the significant funding challenges we face in order to pay for wildfire suppression activities. As you know, for years the Forest Service and Department of the Interior have transferred money from vital agency programs and services in order to fund wildfire suppression. This method isn't simply bad public policy, as wildfire suppression costs continue to rise, it is quickly becoming unsustainable. In his budget proposal for Fiscal Year 2015, President Obama unveiled his plan to fund the largest wildfires, those which are truly threats to the homeland, from disaster funds. The President's proposal will provide the federal agencies responsible for managing wildfires with the tools and resources they need to succeed, and it has our full support.

Conclusion

On behalf of the International Association of Fire Fighters, I appreciate the opportunity to offer our perspective on improving wildland fire fighting operations and better protecting the communities, citizens and first responders threatened by wildfire. To the extent the IAFF can assist the Subcommittee in its efforts to better manage the nation's wildfire problem, I am happy to offer our expertise and pledge to work closely with you and your staff.

Again, I'd like to thank the Subcommittee for the opportunity to testify today and am happy to answer any questions you may have.

Wildfires: Assessing First Responder Training and Capabilities

Statement for the Record of

Chief William R. Metcalf, EFO, CFO, FFireE
President and Chairman of the Board

presented to the

Committee on Homeland Security and Government Affairs

United States Senate

June 5, 2014

INTERNATIONAL ASSOCIATION OF FIRE CHIEFS
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Good afternoon Chairman Begich, Ranking Member Paul, and members of the Subcommittee. I am Chief William R. Metcalf, president and chairman of the board of the International Association of Fire Chiefs (IAFC), and chief of the North County Fire Protection District located in Fallbrook, California. Thank you for the opportunity to submit a statement on the hearing entitled "Wildfires: Assessing First Responder Training and Capabilities."

The IAFC is a 501(c)(3) organization, which represents more than 10,000 chief fire and emergency medical services (EMS) officers. The IAFC's members are leaders in volunteer, career, and combination fire departments. As leaders of their agencies, they must plan and lead the response efforts to both national-level emergencies, including major wildland fires, as well as local-level events, such as vehicle accidents, hazardous materials spills, emergency medical calls, and structure fires. The IAFC maintains a Wildland Fire Policy Committee which focuses on the growing problem of wildland fire.

In 2013, wildland fires impacted every state in the nation. There were more than 47,500 wildland fires which burned roughly 4.3 million acres of land; 81% of these fires were caused by human actions and the remaining 19% of fires were caused by lightning strikes. At the federal level alone, these fires cost the U.S. Department of the Interior (DOI) and the U.S. Department of Agriculture (USDA) more than $1.7 billion to extinguish.

Local fire departments, career and volunteer, respond to all wildland fire incidents and work in conjunction with federal firefighters from the DOI and U.S. Forest Service (USFS) on the largest fires. Nearly 97% of all wildland fire incidents are extinguished on initial attack by local fire departments. The USFS estimates that the wildland fire suppression services provided by these local fire departments have an estimated value of more than $36 billion per year.[1] In order to continue this system of cooperation between federal and local fire suppression agencies, Congress must make investments in local fire departments to ensure they are able to continue responding to wildland fire incidents. Local fire departments are always the first to respond to a wildland fire incident and the last to leave the scene. However, the growing size and severity of wildland fires will make this partnership increasingly difficult if Congress cannot provide the support that these fire departments need. The IAFC believes that there are several actions which Congress can take to assist:

Maintaining Federal Funding of Wildland Fire Training and Operations: The USDA, through the USFS, currently administers the Volunteer Fire Assistance (VFA) grant which provides funding on a matched dollar-for-dollar basis, to small volunteer fire departments. Through VFA, the USFS collaborates with state departments of forestry to distribute grants to volunteer fire departments serving communities of less than 10,000 people. Though each grant is generally no larger than several thousand dollars, these funds help fire departments obtain both wildland fire suppression tools and provide important training for their firefighters on wildland fire suppression techniques. As recently as Fiscal Year 2010, VFA was funded at $16 million; however Congressional

[1] U.S. Forest Service, http://www.fs.fed.us/fire/partners/vfa/

support for VFA has decreased dramatically to just $11 million in recent years. The Fiscal Year 2014 appropriations bill funded VFA at $13.025 million; however the IAFC was disappointed to see the Administration's most recent proposal to reduce VFA to $13 million in its Fiscal Year 2015 appropriations request. The IAFC strongly supports returning VFA to its Fiscal Year 2010 level of $16 million.

VFA represents one of the federal government's most successful grant programs and should be fully supported. Partial funding of VFA harms the abilities of fire departments to have the training and tools they need to protect their communities from the dangers of wildland fire. Additionally, since Fiscal Year 2010, the funding level of VFA has fluctuated by more than 30%. Congress' fluctuating commitment to VFA causes uncertainty for small fire departments in determining whether they will have funding to support the training and capabilities they need to combat wildland fires in their communities.

Implementing the National Cohesive Strategy: In 2009, Congress passed the FLAME Act of 2009 (P.L. 111-88) which established a new mechanism for funding federal wildland fire suppression operations. In addition, P.L. 111-88 also established the National Cohesive Wildland Fire Management Strategy (Cohesive Strategy), which brought together federal, regional, state, local, tribal, and non-governmental partners to discuss the growing problem of wildland fire suppression. Through a five-year-long and multi-phased process, the Cohesive Strategy focused on analyzing data and lessons learned from all levels and creating recommendations to address wildland fire issues on the federal, regional, state, local, and tribal levels. On April 7, USDA Secretary Vilsack and DOI Secretary Jewell sent a letter to Congress to encourage full adoption of the Cohesive Strategy's recommendations. The IAFC echoes this letter and strongly encourages that the Cohesive Strategy's recommendations be fully implemented. These recommendations are interdependent and will only be effective if they are implemented in full. While fire suppression operations are certainly the most easily recognized portion of wildland fire preparedness, Congress must also support programs related to state and local preparedness, forest health, and hazardous fuels removal. The Cohesive Strategy recognizes that these activities are important to address the problem of wildland fire.

The IAFC is aware of, and opposed to, proposals to create a new panel to examine the issue of wildland fire in the United States. The Cohesive Strategy has already assembled our nation's experts on wildland fire suppression and produced clear recommendations for Congress. The IAFC strongly believes that the Cohesive Strategy engaged the correct stakeholders – particularly with regard to stakeholders in the fire suppression community. The Cohesive Strategy's participants included representatives from local career and volunteer fire departments, state departments of forestry, federal wildland firefighters, and a wildland fire standard setting organization accredited by the American National Standards Institute (ANSI). The IAFC believes, without question, that this panel was uniquely qualified to examine the wildland fire problem and make recommendations.

The IAFC also is opposed to proposals to establish a pilot program to review wildland fire training. The National Wildfire Coordinating Group (NWCG) has made strong contributions to this effort since its creation in the 1970s. The NWCG's basic and

advanced wildland fire training classes, also known as "red card" training, are currently in use by federal agencies such as the U.S. Forest Service, state agencies such as the California Department of Forestry and Fire Protection, and local fire departments and contractors across the nation. The National Fire Protection Association (NFPA), an ANSI-accredited standard setting organization which is widely recognized throughout the fire service, also helped standardize training through its publication of *NFPA 1051: Standard for Wildland Fire Fighter Professional Qualifications*. Additionally programs that are already developed such as the Skills Crosswalk and the Recognition of Prior Learning need to be fully supported and implemented by the federal agencies to increase the training of structural firefighters to work in the wildland arena.

The fire service needs action from Congress and the federal government. Convening yet another panel will only result in delays and further inaction.

Improving Wildland Fire Suppression Budgeting: One of the biggest challenges in wildland fire suppression is the inefficient budgeting mechanism Congress uses to fund suppression operations. The current approach has led to shortfalls in the USFS fire suppression accounts in 8 of the past 10 years. When these shortfalls occur, the USFS moves non-suppression funding to suppression accounts in a dangerous practice known as "fire borrowing." While this frees up funding for suppression operations, it also ensures the wildland fire problem will continue growing by forcing the cancellation of programs aimed at state and local wildland fire preparedness, forest health, and hazardous fuels removal. The 2014 fire season has just begun, and the USFS already predicts it will face a shortfall this year of $400 million to $500 million. Unfortunately, the only answer to this shortfall is more fire borrowing.

The IAFC supports the Wildfire Disaster Funding Act (S. 1875/H.R. 3992) which will allow the USFS to gain access to emergency funding to assist in suppression efforts at the worst wildland fire incidents. S. 1875/H.R. 3992 would recognize large wildland fires as disasters, and fund suppression efforts just as we would the mitigation of hurricanes and tornadoes. However, this reform will only succeed if the savings are invested in programs to increase state and local preparedness, improve forest health, and reduce hazardous fuels.

Reforming the Fire Management Assistance Grants: The Fire Management Assistance Grants (FMAGs) provide funding for efforts to suppress wildland fires. While FMAGs are a valuable asset for fire departments, they are only available for use while a fire is burning. Many communities struggle to mitigate the dangerous after-effects of a wildland fire such as flooding, mudslides, and erosion. The IAFC supports the Wildfire Prevention Act of 2013 (S. 1396/H.R. 3333) which would allow states to receive increased funding for hazard mitigation if they receive an FMAG.

Expanding Community Preparedness Programs: Without question, the easiest fire to suppress is one which has not been given free rein to grow. An examination of the fire service's wildland fire suppression capabilities is not complete without a focus on community preparedness programs. One such program is the *Ready, Set, Go!* (RSG!) program which the IAFC manages in collaboration with the USFS. RSG! provides a

method for fire departments to connect with their communities to encourage greater awareness of the wildland fire program. RSG! provides a way for fire departments to teach their community's residents to be:

- ***Ready*** through education on risk factors and safer building practices and landscapes
- ***Set*** through education on monitoring nearby fires
- ***Go*** through education on how to safely and efficiently evacuate

RSG! is currently used in more than 1,000 communities across the nation and helps harden these communities against the threat of wildland fire. As the U.S. population continues to grow, more communities find themselves in the wildland-urban interface. Hardening these communities will help prevent wildland fires and stop a state or region's fire departments from being overwhelmed by multiple fires in one area. Programs such as RSG! and others that help make communities more fire adapted can significantly improve the capabilities of local fire departments to protect lives. Wildland fire prevention and suppression is a cooperative effort between residents and firefighters. Congress must support this partnership by ensuring that the concept of Fire Adapted Communities and the programs and activities that promote a community being fire adapted are properly funded through the USDA and DOI.

The issue of wildland fires will only grow larger and more dangerous unless action is taken to support firefighters and community preparedness efforts. The IAFC looks forward to continuing this discussion in greater detail as this subcommittee continues to examine the problem of wildland fire.

U.S. Department of Agriculture
Office of Inspector General

Forest Service's Firefighting Succession Planning Process

Audit Report 08601-54-SF
March 2010

U.S. Department of Agriculture
Office of Inspector General
Washington, D.C. 20250

DATE: March 31, 2010

REPLY TO
ATTN OF: 08601-54-SF

TO: Thomas L. Tidwell
Chief
Forest Service

ATTN: Janet Roder
Audit Liaison

FROM: Gil H. Harden /s/
Acting Assistant Inspector General
for Audit

SUBJECT: Forest Service's Firefighting Succession Planning Process

This report presents the results of our review of the Forest Service's (FS) firefighting succession planning process. FS' written response to the draft report is included at the end of the report with excerpts and the Office of Inspector General's (OIG) position incorporated into the relevant sections of the report. Based on the written response, we have accepted FS' management decision for all the report recommendations except for Recommendation 19. FS has yet to provide us its response to this recommendation.

In accordance with Departmental Regulation 1720-1, please furnish a reply within 60 days describing the corrective action taken or planned and the timeframe for completion of the recommendation for which management decision has not yet been reached. Please note that the regulation requires a management decision to be reached on all recommendations within a maximum of 6 months from report issuance. Follow your internal agency procedures in forwarding final action correspondence to the Office of the Chief Financial Officer.

We appreciate the assistance your staff provided to our auditors during our review.

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Forest Service's Firefighting Succession Planning Process

Executive Summary

The Office of Inspector General (OIG) evaluated whether the Forest Service (FS) has adequately planned for the timely replacement of its critical fire management staff as retirements increase and fewer of the staff volunteer for fire-related assignments. Like most Federal agencies, FS faces a significant number of retirements during the next 5-10 years. Many of its fire management positions require several years of formal and on-the-job training in order to become certified for firefighting duties. Our audit assessed FS plans for recruiting, training, developing, and retaining those personnel who fill these critical fire management positions. We also identified other factors or barriers affecting FS' ability to develop and mobilize the fire management staff needed to fulfill its firefighting mission. Overall, we concluded that FS has not taken the necessary steps to ensure it has a sufficient number of qualified staff to meet its future wildland fire management responsibilities.

FS is currently regarded as the premier wildland fire management agency and a major partner in the Federal wildland fire management community. As part of its mission, FS protects life, property, and natural resources on 193 million acres of national forest system land and 20 million acres of adjacent State and private property. FS has also been increasingly tasked to respond to non-fire national emergencies like Hurricane Katrina. In 2009, wildfire management activities and non-fire national emergencies consumed almost 50 percent of FS' budget. The need for increased FS emergency response capability, coupled with the retirement of FS' aging workforce, is setting the stage for future shortages of qualified firefighters.[1] Workforce planning is designed to address such shortages by: (1) identifying the current skills, competencies, and capacity of FS' firefighter workforce; (2) evaluating what is needed to meet future challenges; and (3) developing specific actions to ensure the right people are in the right place at the right time to successfully complete the agency's wildfire suppression mission.

Our audit identified the following issues affecting FS' ability to fulfill its wildland fire mission as its firefighter workforce retires:

National Workforce Plan Needed Specific to Firefighters

To fulfill its wildland fire responsibilities, FS has about 24,000 employees (70 percent of its workforce) who hold at least one of over 300 different types of firefighter qualifications. Of these, more than 4,300 are qualified for 54 positions that are most critical to firefighting because they involve essential fire command (e.g., incident commanders) and support activities (e.g., logistics section chiefs). In 2009, approximately 26 percent of these critical personnel were eligible to retire, increasing to 64 percent in 5 years and 86 percent in 10 years. These losses come as FS predicts an increase in both the size and number of fires it will be responsible for suppressing without a corresponding increase in budget resources. In short, FS will be fighting larger fires with fewer available critical firefighters. FS, however, has not developed a national workforce plan to ensure that personnel with critical firefighting

[1] Throughout the remainder of this report the term "firefighter" refers to FS employees being trained or incident qualified to participate in wildland fire incidents and non-fire emergencies.

qualifications will continue to be available to meet FS' firefighting needs. FS had not made it a priority to develop such a plan because it believed the agency's general workforce planning process, which is based on employee job series numbers, was sufficient to cover any firefighter shortages. However, the job series numbers only identify FS' primary job occupations, such as GS-401 (General Biologist) and GS-810 (Civil Engineer). Firefighter positions such as incident commanders and logistics section chiefs are not identified by job series.

Most FS personnel become qualified to hold firefighter positions based on extra training and experience gained alongside their primary job occupations (e.g., biologist or engineer)—firefighting is a collateral duty. Since most employees' firefighter qualifications are not linked to their full-time jobs, a workforce plan based on job series would not provide the information needed to identify and address potential firefighter shortages. A lack of qualified firefighters due to retirements and inadequate planning could jeopardize FS' ability to accomplish its wildland fire suppression mission, resulting in the loss of more property and natural resources and increased safety risks to fire suppression personnel.

Firefighter Training Program Inadequate

FS' firefighter training program does not ensure that sufficient staff are trained to fill positions that meet the agency's current or anticipated needs. Although inefficient, FS allows its employees to self-select firefighting courses and to self-determine the pace of their own progress because employee interest in firefighting is declining. FS is concerned that if employees cannot choose what positions to qualify for or are required to put their fire training to use, they may not volunteer for training, or they may not make themselves available for firefighting once qualified. As a result, FS' firefighter training program relies on employees' personal preferences coinciding with the agency's future needs, instead of ensuring that its training investment ($29.5 million in 2005) yields adequate replacements.

Relying on employee preference to match agency needs has created imbalances between employees' chosen firefighter career paths and FS' needs. FS currently has more qualified firefighters in many critical positions than it has trainees preparing to replace them. Overall, FS has 11,129 critical firefighters and only 5,199 in training for these positions—just under half of what is needed to maintain current wildfire response levels. Since FS is already experiencing critical shortages and anticipates increased responsibility, the agency's demand for qualified firefighters may soon eclipse its supply of trained replacements.

Since employees set their own training pace, they take an average of 23 years to qualify for critical incident management positions such as section chiefs and incident commanders; this is an average of 12 years longer than the optimal timeframes that FS estimates are possible with more focused training. With an average age of 45 and suboptimal training progress, many trainees will be almost eligible to retire by the time they qualify for the critical positions for which they are training. Furthermore, under the current policy, FS estimates that 40 percent of employees who take fire training never follow through to qualify for a firefighter position, a potential waste of $12 million annually.

Lack of Participation Challenges FS' Firefighting Ability

FS' ability to effectively suppress wildfires is also challenged by a lack of participation from its firefighters. FS has trained and qualified many employees as firefighters but does not require them to actually participate during wildfire events or reward them for doing so. As a consequence, each fire season, FS experiences shortages of critical firefighter personnel even though it currently has sufficient numbers of staff trained and qualified to perform these functions. For example, in 2008, only 9 percent of FS' qualified firefighters actually took part in suppressing the agency's largest, costliest wildfires while the vast majority remained at home.

Employees who choose to volunteer and are called to duty are not rewarded for doing so, but are only evaluated and paid in terms of their primary job responsibilities (e.g., soil scientist). Similarly, qualified employees who do not volunteer are not penalized. Although FS directs its managers to ensure firefighters on their staff are available to participate in local, regional, and national wildland fire incidents as the situation demands, managers are also expected to ensure employees' primary work is accomplished. We concluded that having availability be voluntary and the lack of career incentives have caused most of FS' firefighters to list themselves as unavailable for the growing number of large, costly fires where they are needed most. This shortage of available firefighters affects FS' suppression strategies and timeframes. In addition, those firefighters who are available may be deployed more often and without full crews, which places them in stressful and dangerous situations. This disproportionate burden on the few who volunteer nationally and regionally may worsen over the next 10 years as 86 percent of FS' most experienced and qualified firefighters retire.

Unnecessary Education Requirements for Firefighters

We found that FS' ability to fight fires may soon be compromised if FS continues to classify certain of its fire management staff under a job series for natural resources management and biological sciences (GS-401). The series makes academic course work a precondition for employment, but many FS staff may not meet this requirement by an October 2010 deadline established by the Office of Personnel Management (OPM). Although intended to increase safety by upgrading certain fire management staffs' educational requirements, classifying these staff under the GS-401 series will likely have the opposite effect. FS may soon be fighting fires with less than half of its key fire management staff available to oversee firefighting operations and firefighter safety. Further, FS has invested considerable resources (by our estimates $15.7 million) in employees taking classes required by the job series (e.g., college physics), but which are only loosely related to their jobs (e.g., fire program manager).

Our review concluded that the lack of a connection between the GS-401 series' academic requirements and fire staffs' professional proficiency could diminish FS' firefighting effectiveness and safety. It could also affect FS' firefighter succession planning because there will be fewer veteran managers to mentor the next generation of firefighters and make it more difficult for FS to recruit new firefighters in States like California where firefighting organizations have no such education requirement. We reported this issue to the former FS Chief in November 2008 in a management alert that recommended FS discontinue using the GS-401 job series to classify certain members of its fire management staff. We also

recommended that FS coordinate with OPM to develop an alternative to classifying the fire management positions under the GS-401 job series. The former FS Chief agreed to assess the recommended actions in our report and to develop the appropriate policy and job series classifications that meet FS' operational needs.

Recommendation Summary

To ensure that FS adequately plans for the timely replacement of its firefighting workforce, we recommend that FS:

- Assign responsibility for firefighter qualification workforce planning to a top-level official at FS' national headquarters and establish a team to initiate, guide, and monitor the agency's firefighter workforce planning process.

- Develop a national workforce plan based on firefighters' position qualifications that focuses on identifying, assessing, and meeting specific workforce needs relative to FS' strategic goals and objectives.

To ensure its firefighting workforce is adequately trained in the most cost-efficient manner possible, we recommend that FS:

- Identify current and anticipated local, regional, and national firefighter needs and develop specific training accomplishment targets to measure progress in meeting them and incorporate the targets into managers' annual evaluations.

- Direct FS employees who elect to participate in firefighter training to pursue firefighter qualifications according to the agency's local, regional, and national needs.

- To encourage employees to obtain certifications in those firefighter positions where they are most needed, create incentives, such as cash awards and formal recognition, for those employees who complete their certifications.

- Hold employees accountable for the timely completion of their firefighter training by incorporating assessments of their progress into their individual development plans and annual evaluations or by creating firefighter training contracts with specific requirements and consequences for non-performance.

To ensure that adequate numbers of firefighters are available when needed, we recommend that FS:

- Identify optimal participation numbers and require qualified firefighters and trainees to be available for local, regional, and national fire assignments according to FS' needs.

- Direct managers to adjust performance targets to reflect firefighting participation and modify managers' performance evaluations to include staff's firefighting availability.

- Evaluate whether incentives such as increased pay for performance would significantly increase employee participation. If so, determine the cost benefit of implementing such a change.

- Immediately discontinue the use of the GS-401 job series for those fire management positions discussed in the report and coordinate with OPM to develop an alternate approach, such as creating a new wildland firefighter series, or classifying staff under existing series with more appropriate experience and training requirements

Agency Response

In its written response to the audit report, FS generally concurred with all the audit findings and recommendations. The complete written response is included at the end of the report.

OIG Position

Based on FS' written response and estimated completion dates for corrective actions, OIG accepts FS' management decision on all but one of the audit recommendations. FS has yet to respond to the remaining recommendation.

Background & Objectives

Background

The Forest Service (FS) is currently regarded as the premier wildland fire management agency and a major partner in the Federal wildland fire management community. As part of its mission, FS protects life, property, and natural resources on 193 million acres of national forest system land and 20 million acres of adjacent State and private property. Wildfire management represents a significant portion of FS' program activities, increasing from 13 percent of its total budget in 1991 to 48 percent in 2009, and incurring costs exceeding $1 billion in 6 of the last 8 years.

Wildfire management is a massive endeavor that requires FS to train and qualify large numbers of employees. About 24,000 FS employees (70 percent of its entire workforce) hold some type of firefighter qualification, ranging from entry-level firefighters wielding axes and shovels on the fire line, to incident commanders responsible for overall management of wildland fire incidents.[2] According to FS, about half of its firefighters are full-time fire management staff whose primary job includes fire-related duties like fire education, prevention, and operations. The other half are fire militia—employees whose primary jobs involve non-fire duties like recreation, timber, or wildlife management.

FS' firefighter workforce is shrinking as significant numbers of employees begin to retire. FS estimated that 30 percent of its workforce was eligible to retire in 2005.[3] At the same time, FS' need for qualified firefighters is increasing. Drought and accumulated hazardous fuels (e.g., dry brush) have led to increasing numbers of large, complex wildfires that are more costly to suppress. For example, in 2008, large fires (i.e., those fires equal to or greater than 300 acres) burned 1.7 million acres of FS land and cost $1.5 billion to suppress. This increase in fire duration and severity is severely taxing available firefighting resources with shortages of critical firefighters occurring each season.

FS' responsibilities under the National Response Plan also put substantial demands on its wildland firefighting resources. Over the last decade, FS has been increasingly tasked to respond to non-fire national emergencies like Hurricane Katrina. In 2005, for example, FS' wildfire teams spent 40 percent of their time responding to non-fire events. If extreme fire and non-fire events were to occur simultaneously, FS might lack the ability to respond accordingly. In addition, the same people needed to manage FS' wildfire incidents also have full-time non-firefighting jobs in their home units. During an increasingly longer portion of the year, the competing interests of firefighter support and critical work at home create escalating tensions for employees and their supervisors. The need for increased FS emergency response capability, coupled with the retirement of FS' aging workforce, is setting the stage for critical shortages of qualified firefighters in the future. Workforce planning is designed to address such shortages by: (1) identifying the current skills, competencies, and capacity of FS' firefighter workforce; (2) evaluating what is needed to meet future challenges; and (3) developing specific actions to

[2] Throughout the remainder of this report, the term 'firefighter" refers to FS employees being trained or incident qualified to participate in wildland fire incidents and non-fire emergencies.
[3] Source: National Forest Fire Management Officer's Conference "Snapshot of the Fire Workforce", January 2000.

ensure the right people are in the right place at the right time to successfully complete the agency's wildfire suppression mission.

FS' firefighter capabilities are critical because they directly impact its ability to protect natural resources, property, and human lives. A lack of qualified firefighters due to retirements and inadequate planning could jeopardize FS' accomplishment of its wildland fire suppression mission, with a resulting loss of significantly more land and structures and increased safety risks to fire suppression personnel.

Objectives

Our primary objective was to evaluate whether FS has adequately planned for the timely replacement of its critical wildland fire personnel as retirements increase and fewer staff volunteer for fire assignments. More specifically, we assessed FS plans for recruiting, training, developing, and retaining those personnel who fill critical firefighter positions. We also identified other factors or barriers affecting FS' ability to develop and mobilize firefighters needed to fulfill its primary wildfire suppression mission.

Details of our audit methodology can be found in the Scope and Methodology section at the end of this report.

Section 1: Planning

Finding 1: National Workforce Plan Needed to Specifically Address Future Critical Firefighter Shortages

FS does not have a national plan to manage its future firefighting workforce needs. FS had not made it a priority to develop such a plan because it believed the agency's general workforce planning process, which is based on employee job series numbers, was sufficient to cover any firefighter shortages. However, the job series numbers only identify FS' primary job occupations such as GS-401 (General Biologist) and GS-810 (Civil Engineer). Firefighter positions such as incident commanders and logistics section chiefs are not identified by job series. A workforce plan based on job series would therefore not provide the information needed to identify and address potential firefighter shortages. Without a plan specific to firefighters, FS' continued effectiveness in protecting the nation from wildfires and in ensuring firefighter safety may be undermined by the increasing loss of experienced staff who are succeeded by fewer, unsuitably skilled replacements.

The U.S. Department of Agriculture's (USDA) Strategic Human Capital Plan directs agencies, including FS, to develop workforce plans that address mission critical occupations. To accomplish this, FS designed a planning process that provides a framework for making workforce decisions tied to its national strategic goals and objectives. This process and the resulting workforce plan are intended to give FS' management the means to address long-term human resource issues, such as the changing mix of available skills and competencies due to retirement. FS' overall workforce planning purpose is to ensure that "the right people with the right skills and competencies are in the right job at the right time to carry out the Agency's mission."[4] The overall plan focuses on FS' primary job occupations (e.g., GS-401 General Biologist and GS-810 Civil Engineer). It does not address its critical firefighter positions (e.g., incident commanders and logistics section chiefs).

To fulfill its wildfire management responsibilities, FS has trained and qualified about 24,000 employees to perform over 300 different firefighter functions. Of these, more than 4,300 are qualified for 54 positions that are most critical to firefighting because they involve essential fire command (e.g., incident commanders) and support (e.g., logistics section chiefs).[5] As shown in the chart below, in 2009, approximately 26 percent of these firefighters were eligible to retire, with 64 and 86 percent becoming eligible in the next 5 and 10 years, respectively.[6] In addition, the average age of those qualified to hold these critical positions is 50 years old,[7] which, given a mandatory retirement age of 57 for many,[8] means that FS will soon lose a significant number of qualified firefighters. These losses come as FS predicts an increase in both the size and number of fires it will be responsible for suppressing without a corresponding increase in budget resources. In short, FS will be fighting larger fires with fewer available firefighters. FS, however,

[4] FS' Workforce Planning Guide p.5 (September 2007).
[5] Critical firefighting functions were determined through FS interviews and incident management team roster reviews.
[6] While the majority of our analysis focused on 4,316 FS firefighters holding critical incident qualifications, the retirement eligibility percentages were based on 3,563 critical FS firefighters where retirement information was available.
[7] The estimate of 50 years is based on the weighted average ages of 4,316 FS employees holding a combined 11,129 critical firefighter qualifications. (See exhibit B.)
[8] Personnel in any of FS' job series may qualify to hold any fire position, which is considered a collateral duty. However, some FS staff have full-time positions with a mandatory retirement age of 57, while others do not.

has not developed a national workforce plan to ensure that personnel with critical firefighting qualifications will continue to be available to meet FS' firefighting needs.

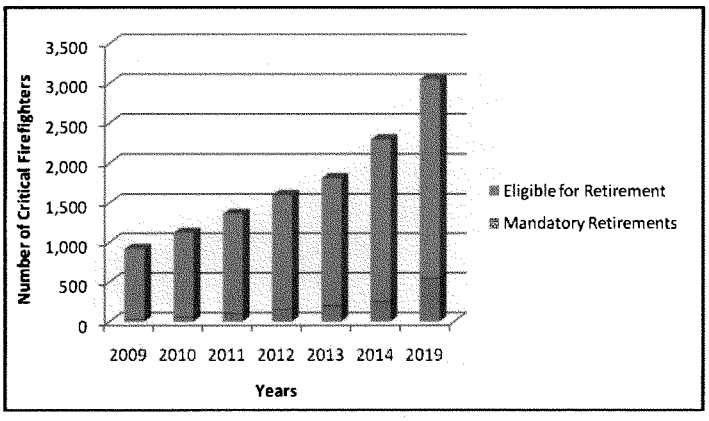

Chart Showing Retirement Projections for FS' Firefighters[9]

Internal and external reports have long recognized FS' need for firefighter workforce planning to maintain its wildfire response capability.[10] In 2000, for example, an FS fire report warned:

> *A very serious problem is developing. Fires have become more difficult to control and the overall wildland fire suppression capability has decreased. During heavy fire seasons, there are simply not enough critical resources to meet demand. This combined with an aging workforce and a fire management cadre that is smaller and less experienced than in the past puts the agency at a critical juncture.*[11]

The 2000 report urged FS to address its diminished wildland fire suppression capability immediately. Over 10 years later, FS still has not taken sufficient actions to ensure it has the firefighters needed to accomplish its wildfire suppression mission.

While FS has not conducted national workforce planning for firefighters, the agency has developed an overall workforce plan. The overall plan focuses on FS' primary job occupations (e.g., GS-401 General Biologist and GS-810 Civil Engineer) but does not address its critical firefighter positions (e.g., incident commanders and logistics section chiefs). FS officials believed workforce plans based on employee job series met the organization's succession planning needs and that creating an agency-wide plan specific to firefighters was unnecessary. However, FS personnel typically become qualified to hold firefighter positions based on extra

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[9] The retirement rates represent the cumulative effect of FS' critical firefighters eligible to retire between 2009 and 2019.
[10] *Policy Implications of Large Fire Management: A Strategic Assessment of Factors Influencing Costs*, prepared by Forest Service State & Private Forestry (January 2000); *Federal Wildfire Activities: Current Strategies and Issues Needing Attention*, U.S. General Accounting Office (August 1999); and *Quadrennial Fire and Fuel Review Report*, prepared by various Federal fire management task groups (June 2005).
[11] *Policy Implications of Large Fire Management: A Strategic Assessment of Factors Influencing Costs*, prepared by Forest Service State & Private Forestry (January 2000).

training and experience gained alongside their primary job occupations (e.g., biologist or engineer)—firefighting is a collateral duty. Since most employees' firefighter qualifications are not linked to their full-time jobs, a workforce plan based on job series does not provide information about firefighter qualifications. For example, a biologist may be qualified as an incident commander, but a workforce analysis focused on that job series will show the need for another biologist, not a firefighter.

Because potential firefighter shortfalls had not been nationally identified and assessed, managers gave coordinated firefighter succession planning a lower priority, believing that FS had always had sufficient firefighters in the past and would continue to do so in the future. Others believed specific firefighter staffing needs were best identified and addressed at the local level. National direction for firefighter succession planning consisted of internal directives reminding managers of the need to develop additional firefighters. For example, in 2008, FS' national office directed regional foresters to identify firefighting positions that were nationally recognized as being in short supply and to take steps to fill them (e.g., training and outreach). However, this memorandum left each region to decide for itself what firefighting positions were facing national shortages, how many staff the region should contribute, and when action should be taken.

When we interviewed FS staff they had different perspectives about the agency's firefighter needs. The absence of specific agency-wide goals or timeframes resulted in an uncoordinated, undefined approach that had a detrimental effect on FS' long-term, national firefighting staffing needs. Delegating succession planning to the regional (or local) level also left FS without a way to respond to shifting, national needs. For example, several FS regions have initiated fire management workforce plans, but these plans focus on replacing full-time fire staff (e.g., fire program manager) instead of employees who are qualified to be firefighters (e.g., incident commander). Further, without specific goals and timeframes, FS is neither able to measure its national progress in succession planning nor to hold regions accountable for their achievements.

FS should develop a national workforce plan based on firefighters' position qualifications, integrating budget, human resources, and strategic interests in a planning process that:

- analyzes current resources (e.g., establishes a baseline of needed firefighter qualifications),
- determines future needs based on agency-wide strategies and objectives,
- forecasts likely firefighter qualification shortages and surpluses based on projected retirements and attrition,
- develops action plans with specific regional and unit goals to address shortages and establishes timelines to accomplish them, and
- evaluates implemented measures to ensure that they are timely and effective.

FS' workforce planning guide offers these elements as the basic components for determining future personnel needs. In order to make these determinations, however, FS needs to enhance its ability to analyze its firefighting workforce.

Currently, FS maintains employee information in two separate databases: the Incident Qualification and Certification System (IQCS) and the Human Resources (HR) System. IQCS identifies employees' firefighting qualifications and training status but is not linked to HR, which

holds personnel data such as job series and retirement eligibility. As a result, FS can use IQCS to determine the firefighting skills held by its employees and the status of staff being trained to replace them, but it cannot forecast likely shortages based on pending retirements. Conversely, based on HR data, FS can determine that it will need another biologist in 2011 to replace someone eligible for retirement that year. However, FS cannot forecast its need to replace that person's incident commander skill, because their fire qualifications are recorded separately in IQCS.

Until recently, FS had the ability to use employees' social security numbers in each database to link personnel information in HR to employees' firefighting skills in IQCS. However, in September 2007, USDA restricted the use of social security numbers in HR in order to protect employees' privacy. Instead, the Department directed agencies to establish alternate unique identifiers for employees. FS has stopped using social security numbers in IQCS, but has not developed alternate identifiers to link employees in both databases.

Given FS' need to conduct accurate firefighter workforce analyses, we recommend that FS develop a unique identifier for each employee to link its HR and IQCS databases.[12] This will allow FS to analyze its current firefighting resources (qualifications and trainees) in IQCS and to project future shortages and surpluses based on relevant HR data such as retirement eligibility dates, employees' ages, etc.

We also recommend that FS' unique code identify employees as either fire staff or fire militia. FS' fire staff perform fire-related work such as removing excess brush from national forests, while militia perform FS' non-fire-related work, such as timber and natural resource management. Although either group may qualify as firefighters, the two differ in several aspects that are important for workforce succession planning. For example, many fire staff have mandatory retirement at 57 while most militia do not. In addition, while fire staff may be required to qualify for firefighting positions, fire militia must volunteer to do so. Further, fire staff have opportunities to learn about firefighting as part of their daily work and so may be more likely to train and deploy than militia, who may rarely interact with FS' firefighting program. According to FS, currently about half of its firefighters are militia. Identifying whether employees belong to fire staff or fire militia allows FS to forecast its replacement needs due to mandatory retirement and focus firefighting outreach and recruitment by analyzing participation trends specific to each group.

We further recommend that FS make succession planning for its firefighting program a high priority by assigning responsibility for successfully implementing firefighter workforce planning to a top level official at FS' national headquarters and establishing a firefighter workforce planning team to initiate, guide, and monitor the agency's planning efforts. FS should specify regional and unit level goals and timeframes in relation to predicted national firefighter qualification needs. Together, these steps will enable FS to address the coming loss of qualified firefighters, measure its progress in managing its firefighting workforce, and hold managers accountable. These steps will also help FS ensure that enough firefighters are available when and where the agency needs them to accomplish its wildfire suppression goals and objectives.

[12] Employees' names are not suitable for unique identifiers because they change due to marriage or preference, and may also be inconsistently keyed into the databases (e.g., "Robert Jones" in HR and "Bob Jones" in IQCS).

FS must create a workforce planning process that addresses the agency's firefighter qualification needs. Without it, FS may not be able to meet its wildfire suppression responsibilities because it will lack qualified firefighters to replace personnel as they retire. The level of firefighter safety may also decrease as FS supplements its firefighting force with non-agency personnel trained and certified to different standards. In addition, FS' reliance on other fire management agencies to provide needed firefighter personnel due to its insufficient planning could both increase FS' already significant wildfire suppression expenditures through the higher costs of using non-FS employees and jeopardize the response capabilities of both FS and the assisting agencies.

Recommendation 1

Assign responsibility for firefighter qualification workforce planning to a top level official at FS' national headquarters.

Agency Response

FS concurs with this audit recommendation and will assign the responsibility for firefighter qualification workforce planning to the Director, Fire and Aviation Management (FAM). The Director, FAM, will work in close coordination and support with the Director, Human Resources Management (HRM). This firefighter qualification workforce planning process will address firefighter position qualifications for all firefighters, including the militia. This relationship and expected results will be formally documented in a letter to both the Directors. FS' estimated completion date for this action is April 15, 2010.

OIG Position

We accept FS' management decision on this recommendation. For final action, FS needs to provide the Office of the Chief Financial Officer documentation showing that the agreed upon action has been taken.

Recommendation 2

Establish a team to initiate, guide, and monitor the agency's firefighter workforce planning process.

Agency Response

FS concurs with this audit recommendation and will establish an interdisciplinary "Workforce and Succession Planning Strategic Team" (WfSST) that includes staff from HRM, FAM, and other national, regional and local line and staff, as applicable. The WfSST will be formed to focus on creation of a Strategic Plan for redesigning the agency's firefighting business model. The Director of FAM will designate a program manager for this Team who will report directly to the Director, FAM. The WfSST Program Manager will initiate, guide, and monitor the agency's overall workforce planning effort, which will cover fire management positions and the "militia," utilizing FS workforce planning efforts underway. Currently the FS uses the Workforce Planning and Program Analysis (WfP&PA) tool and develops a Workforce Plan to facilitate workforce planning throughout all levels of the agency. The agency will build on those efforts, but will address all firefighters, not just

those job codes specific to fire management. FS' estimated completion date for this action is April 30, 2010.

OIG Position

We accept FS' management decision on this recommendation. For final action, FS needs to provide the Office of the Chief Financial Officer documentation showing that the agreed upon action has been taken.

Recommendation 3

Create a unique identifier for each FS employee in both the IQCS and HR database that codes the employee's position as fire staff or fire militia to facilitate analysis needed to support firefighter workforce planning.

Agency Response

FS concurs with this audit recommendation. This task will be coordinated by the FAM WfSST Program Manager. The Program Manager will work in collaboration with HRM to determine the needed resources, the feasibility of the work, the resources required to implement such an identifier, and implications to other agencies and cooperators. This action is likely to require a full year for the feasibility study alone. FS' estimated completion date for this action is March 31, 2011.

OIG Position

We accept FS' management decision on this recommendation. For final action, FS needs to provide the Office of the Chief Financial Officer documentation showing that the agreed upon action has been taken.

Recommendation 4

Develop a national workforce plan based on firefighters' position qualifications that focuses on identifying, assessing, and meeting specific workforce needs relative to FS' strategic goals and objectives and that establishes specific regional and unit goals and timeframes in relation to national firefighter qualification needs.

Agency Response

FS concurs with this audit recommendation. Development of the National Firefighting Workforce and Succession Plan, which will address firefighter position qualifications for all firefighters, including the militia, will be overseen by the WfSST established in response to Recommendation Number 2, by working closely with the HRM Workforce Planning unit. The analysis of current staffing and current known vacancies will be assessed near term using current workforce planning tools and other efforts underway at the FS. The ensuing plan will form the basis for redesigning the agency's current firefighting business model and will address all firefighters, including the militia. Each region will assess the extent and nature of its respective FAM organizations and militia responders based on metrics which characterize fire occurrence, fuel types, fuels treatment/fire recurrence intervals, coordination, cooperative

capability, etc. Currently each Region utilizes the WfP&PA tool to address workforce planning. Regional data is included in a standard template and published in Workforce Plans as required by HRM guidance. As the regional plans are broadened to address all firefighters, including militia, and then finalized, the Regional plans can then be rolled up into the overall National Workforce and Succession Plan. FS' estimated completion date for this action is January 31, 2011.

OIG Position

We accept FS' management decision on this recommendation. For final action, FS needs to provide the Office of the Chief Financial Officer documentation showing that the agreed upon action has been taken.

Recommendation 5

Develop specific action plans and timelines for regional and unit managers to follow in meeting the firefighter position qualification needs identified in Recommendation 4.

Agency Response

FS concurs with this audit recommendation. Currently, each Region utilizes the WfP&PA tool to address workforce planning. Regional data is included in a standard template and published in Workforce Plans as required by HRM guidance. As the Regional plans that address all firefighters are finalized, the Regional plans can then be rolled up into the overall National Workforce and Succession Plan that will address all firefighters, including militia. The combined Regional responses will comprise the basis for the national Firefighting Workforce and Succession Plan (ref. response to Recommendation Number 4). Action plans will be prepared by the local units and compiled by each Region identifying how to meet all firefighter position needs identified in the National Firefighting Workforce and Succession Plan. The Plan will note specific timelines to meet national objectives. FS' estimated completion date for this action is January 31, 2011.

OIG Position

We accept FS' management decision on this recommendation. For final action, FS needs to provide the Office of the Chief Financial Officer documentation showing that the agreed upon action has been taken.

Finding 2: Fire Training Program Does Not Adequately Provide for Future Needs

FS' firefighter training program does not ensure that sufficient staff are trained to fill positions that meet the agency's current or anticipated needs. This occurred because FS allows employees to self-select firefighting courses and to self-determine the pace of their progress. Because employee interest in firefighting is declining, managers have been concerned that if employees cannot choose what positions to qualify for or are required to put their fire training to use, they may not volunteer for training, or they may not make themselves available for firefighting once qualified. As a result, FS' firefighter training program relies on employees' personal preferences coinciding with the agency's future needs, instead of ensuring that its training investment ($29.5 million in 2005)[13] yields adequate replacements. With no coordination between qualified firefighters and those training to replace them, this practice may compromise FS' future firefighting effectiveness.

FS' firefighter training program consists of both formal classroom training and field experience. Participation in both types of firefighter training is optional for most FS employees.[14] According to FS policy, if employees agree to train, their preferences are to be considered,[15] but FS managers should ensure that training produces firefighters in positions that meet the agency's needs.[16] For example, an employee may want to learn how to operate a bulldozer on a fire, but if FS has a more pressing need for incident commanders it could direct the employee to train for that position. According to FS practice, however, FS managers allow employees to select their own training because the agency is concerned about lower interest and participation in firefighting.

This practice has not motivated employees to pursue critical firefighter positions or resulted in timely completion of their firefighter training. It has also not resulted in higher firefighter participation. Despite choosing their own training, only 9 percent of FS' qualified firefighters volunteer for national and regional fires. These are usually FS' largest and costliest fires. Relying on employee preference to match agency needs has also led to a gap between FS' current complement of critical firefighters and the trainees preparing to replace them. Currently, FS has 11,129 critical firefighters but only 5,199 employees training to replace them.[17] At the same time, FS faces a coming wave of retirements. According to our analysis, 64 percent of critical firefighters can retire in 2014, and 22 percent more will be eligible by 2019.

In addition, with training proceeding at an employee-determined pace, trainees take longer than necessary to qualify for critical firefighting positions. For example, as shown in the chart below, trainees average 23 years to qualify for three groupings of critical incident management

[13] We could only obtain FS' firefighter training costs for 2005. FS does not currently track its training costs specific to firefighting.
[14] Some fire staff positions require specific firefighter training, such as Supervisory Fire Engine Operators.
[15] FSH 5109.17.04.4 (August 2007).
[16] FSM 5103.1 (June 2005), 5126.02 and 5126.03 (July 2005).
[17] Because FS employees may be qualified or trained in more than one critical position, the numbers cited represent incident positions rather than unique individuals.

positions, or an average 12 years longer than the optimal timeframes that FS estimates are possible with more focused training.

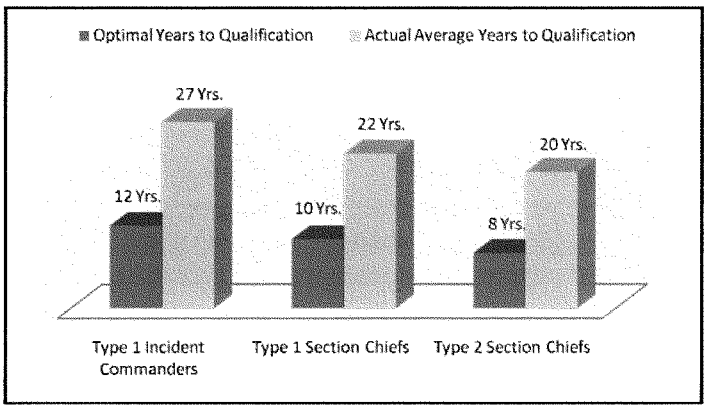

Chart Showing Actual Versus Optimal Time to Qualify for Firefighter Positions

With an average age of 45 and suboptimal training progress, many trainees will almost be eligible to retire by the time they qualify for the critical positions for which they are training (see exhibit B). FS incurs greater costs providing training that takes too long and does not address its needs.

To date, even though critical firefighter shortages are occurring, FS has not addressed the conflict caused by allowing employees to choose their own training. Further, the agency's responsibilities are escalating. Although FS has not analyzed its current or anticipated need for firefighters (see Finding 1), the agency predicts that more mega-fires will occur in the coming years and that fires in general may be larger due to accumulated hazardous fuels (e.g., underbrush).[18] In addition, FS' firefighters have been increasingly used for national emergencies (e.g., natural disasters). Without ensuring that its training program timely provides qualified replacements, FS may face meeting such challenges with about half of its current critical firefighting force, which will negatively impact both safety and effectiveness.

Without sufficient numbers of trained firefighters, FS may also be facing significant cost increases if fires that could be quickly contained instead grow into larger and costlier mega-fires. Lack of trained replacements can also increase FS' costs since using other agencies' firefighters can be significantly more expensive for FS to mobilize. For example, State firefighters from the California Department of Forestry and Fire Protection are paid on a "portal to portal" basis (from the time they leave their house to the time they return) rather than the 14-hour shifts typically worked by FS firefighters. As a result, FS estimated that it spent an additional $25 million on a single wildfire incident by using California firefighters rather than FS or other Federal employees.

[18] Mega-fires are wildfires that are extraordinary in size, complexity, and resistance to control.

To mitigate these effects and to improve its firefighter training program, FS should (1) facilitate training that corresponds with current and anticipated needs, and (2) oversee trainees' progress, including required on-the-job training, in order to ensure that they timely qualify.

Facilitating Training Based on Agency Needs

FS managers approve individual development plans for employees who want to train for various firefighting positions. According to FS policy, the development plans should balance the employees' training interests against the agency's firefighting needs. However, FS managers approving training do not know the agency's firefighter needs because that information has not been officially determined. In addition, employee interest in firefighting is decreasing due to conflicting demands, longer fire seasons, and lack of incentives. To encourage interest in firefighting, managers allow employees to pursue the training they prefer. FS neither requires employees to train for certain positions nor holds managers accountable for approving training that does not meet the agency's needs.

Employee-driven training has created imbalances between employees' chosen firefighter career paths and FS' needs. In all but two critical firefighter positions, there are significantly more qualified firefighters than trainees preparing to replace them. For example, as of 2008, FS had 27 firefighters qualified as type 1 incident commanders (responsible for on-the-ground strategy and tactics) and 3 corresponding trainees. Similarly, FS had 1,171 division supervisors and 363 trainees. Overall, FS has 11,129 firefighters qualified for critical positions and only 5,199 in training for these positions—just under half of what is needed to maintain current wildfire response levels (see exhibit B). Since FS is already experiencing critical shortages and anticipates increased responsibility, the agency's demand for qualified firefighters may soon eclipse its supply of trained replacements.

Monitor Trainees to Ensure Timely Progress

FS does not monitor trainees' progress adequately to ensure that they are on track to timely obtain their firefighter qualifications. Fire training officers are responsible for counseling current and prospective firefighter trainees and preparing and prioritizing fire training nominations. However, many forests (an FS administrative division) have no fire training officer on staff, while others assign fire training functions as a collateral duty that may or may not get done depending on the designated employee's primary job responsibilities. In general, trainees are left to progress through the firefighter qualification system without direction and according to their own timeline.

According to estimates by FS' training officers, about 40 percent of employees take fire training but never qualify for a firefighter position. We estimate that FS may be spending $11.8 million annually for employees who attend fire training courses but who do not qualify for firefighter positions.[19] For some critical positions, this inefficiency is even greater (see exhibit C).[20] Since trainees are neither accountable for nor guided along any particular course

[19] Although FS does not track its fire training expenditures, we estimated its annual cost to be about $11.8 million by multiplying $29.5 million (the amount FS spent on fire training that it reported to Congress in fiscal year 2005) by 40 percent (FS' estimated training inefficiency rate).
[20] Exhibit C lists only a small percentage of the 361 firefighter positions available to FS employees and reflects instances where we had sufficient data to perform our analysis. Other firefighter positions not listed may also have significant training inefficiencies.

of training, many use a scattershot approach. They may take a few courses towards qualifying for a position and then switch midstream for another, or they may take courses that cumulatively do not progress to any position. This approach results in a large training investment with minimal return. For critical positions, FS trainees are, on average, 45 years of age—and in some cases they may take up to 27 years to qualify for a top-level firefighter position such as a type 1 incident commander.

Further, if employees do not get adequate on-the-job field experience within 3 to 5 years after receiving formal classroom training, they may need to retake their courses. Although FS policy requires managers to deploy trainees in a timely fashion to ensure that the effectiveness of their training is not lost, the agency has not assigned this responsibility. Instead, trainees are mobilized based on a network of informal connections between training officers and the incident management teams assigned to wildfires. In 2008, approximately 34 percent of trainees did not receive timely on-the-job experience.

A 2008 training study concluded that there was a marked improvement in firefighter training when dedicated training officers were on site.[21] Another 2001 study determined that 74 percent of FS staff found the absence of clear career paths hindered their participation in firefighter training.[22] These studies indicate an opportunity for FS to improve its training program by employing full-time training officers to oversee trainees' progress.

In conclusion, FS needs to ensure that its training program is adequate to meet the twin challenges posed by increasing demands on its resources and rising retirement rates. Several studies over the years have reached similar conclusions, but they have not established timeframes or mechanisms for addressing the challenges.[23] For example, in 2008, FS participated in an interagency study that concluded that the current fire training process was "highly inefficient" and recommended a more effective use of training resources, such as basing firefighter training on agency needs, creating incentives for employees to pursue critical firefighter positions, and obtaining management and employee commitments to complete firefighter career paths. However, the study neither offered timeframes for taking action, nor required the issue to be resolved. In effect, past studies have noted problems without requiring solutions.

To improve the effectiveness and cost-efficiency of its firefighter training program, FS should identify current and anticipated firefighter needs and develop specific accomplishment goals to measure its progress in meeting them. While more than three-quarters of FS' critical firefighter positions have an average age greater than 50, a recent review showed a general balance in the age distribution of its firefighters when viewed across the ranks of its entire workforce.[24] To ensure FS has the qualified firefighter leaders it needs for the future, employees who volunteer for training should be directed to positions that meet FS' local, regional, and national identified

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[21] *Management Efficiency Assessment of the Interagency Wildland Fire Training and Related Services*, prepared by Management Analysis, Inc. (July 24, 2008).
[22] *Where Have All the Firefighters Gone*, prepared by the Brookings Institution (July 2001).
[23] *Wildland Firefighter Safety Awareness Study*, prepared by Tridata Corporation, Phase II (February 1997) and Phase III (March 1998); *Where Have All the Firefighters Gone; Federal Fire Training Strategy* prepared by the Federal Fire Training Task Group (February 2002); *Quadrennial Fire Review* (June 2005 and January 2009), prepared by various Federal fire management teams; and *Management Efficiency Assessment of the Interagency Wildland Fire Training and Related Services*, prepared by Management Analysis, Inc.(July 2008).
[24] *Quadrennial Fire Review*, January 2009.

needs. Training approval procedures should also be modified to require fire training officers to document their concurrence or non-concurrence with employees' planned firefighting courses.

To provide accountability, managers' annual performance plans and evaluations should reflect their progress in achieving individual and agency training goals. Individual employees should also be held accountable for timely progress on their firefighter training by incorporating assessments of their training progress into their annual performance plans and annual evaluations or by creating firefighter training contracts with specific requirements and consequences for non-performance. To encourage employees to obtain certifications in those firefighter positions where they are most needed, FS should also create incentives, such as cash awards and formal recognition for those employees who complete their certifications.

Finally, FS should increase the role of fire training officers who should be responsible for: (a) collaborating with managers and training personnel to maintain efficiency and effectiveness, (b) conducting outreach to engage employees in fire training, (c) ensuring trainees' timely progress to qualify for positions that meet FS' needs, and (d) facilitating timely trainee deployment to support the qualification process. FS' outreach is especially important for the fire militia staff whose day-to-day duties do not involve wildfire suppression. According to senior FS officials, participation in training and firefighting for militia is dropping partly because they are unfamiliar with the firefighter training program and career paths. FS' outreach may include making information about the benefits available and proactive mentoring to guide militia through FS' firefighter training.

Recommendation 6

Identify current and anticipated local, regional, and national firefighter needs and develop specific training accomplishment targets to measure progress in meeting them.

Agency Response

FS concurs with this audit recommendation. Specific focus on identifying current and anticipated needs for training all firefighters and developing methods to ensure that training meets those needs will be part of the National Firefighting Workforce and Succession Plan that will be developed in response to Recommendation Number 2, and a part of the larger overall Strategic Plan to redesign the agency's firefighting business model that the WfSST will undertake. The responses to Recommendations Numbers 4 and 5 address incorporating local and regional needs which will guide organizational configurations based on program demands. FS' estimated completion date for this action is March 31, 2011.

OIG Position

We accept FS' management decision on this recommendation. For final action, FS needs to provide the Office of the Chief Financial Officer documentation showing that the agreed upon action has been taken.

Recommendation 7

Require those employees who elect to participate in firefighter training to pursue firefighter qualifications in those positions most needed according to the agency's local, regional, and national goals.

Agency Response

FS generally concurs with this audit recommendation. Agency-wide use of the Fire and Aviation Management Career Assessment Tool (FAMCAT) and Long-Term Individual Development Plan (LTIDP) process for all firefighters outlined in response to Recommendation Number 6 will ensure that employees who undertake firefighting training will do so in alignment with the agency's firefighting goals, as outlined in the National Firefighting Workforce and Succession Plan and the Strategic Plan for redesigning the agency's firefighting business practices.[25] FS' estimated completion date for this action is March 31, 2011.

OIG Position

We accept FS' management decision on this recommendation. For final action, FS needs to provide the Office of the Chief Financial Officer documentation showing that the agreed upon action has been taken.

Recommendation 8

Modify current employee training approval procedures to require that fire training officers document their concurrence or non-concurrence with employees' planned firefighting courses.

Agency Response

FS generally concurs with this audit recommendation. FS believes this role is more appropriate for an employee's supervisor. Supervisors will document their concurrence or non-concurrence with the employee's training plan as a result of implementation of the FAMCAT and LTIDP processes outlined in Recommendation Number 6. FS' estimated completion date for this action is March 31, 2011.

OIG Position

We accept FS' management decision on this recommendation. For final action, FS needs to provide the Office of the Chief Financial Officer documentation showing that the agreed upon action has been taken.

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[25] See FS' complete response to Recommendation 6 at the end of this audit report which discusses its use of FAMCAT and LTIDP.

Recommendation 9

Hold managers accountable for the training accomplishment targets established in Recommendation 6 by incorporating them into their annual performance plans and evaluations.

Agency Response

FS generally concurs with this audit recommendation. Managers will be heavily involved in ensuring that their employees meet their training needs as identified in their LTIDPs. The WfSST will develop a Strategic Plan for redesigning the agency's current firefighting business practices, as discussed in response to Recommendation Numbers 2 and 6. The Plan will identify the best method to ensure managers are held appropriately accountable for meeting the agency's firefighting training needs. The agency will then take the appropriate actions – as outlined in the Plan – after they are approved by agency leadership. FS' estimated completion date for this action is March 31, 2011.

OIG Position

We accept FS' management decision on this recommendation. For final action, FS needs to provide the Office of the Chief Financial Officer documentation showing that the agreed upon action has been taken.

Recommendation 10

Hold employees accountable for the timely completion of their firefighter training by incorporating assessments of their progress into their individual development plans and annual evaluations or by creating firefighter training contracts with specific requirements and consequences for non-performance.

Agency Response

FS generally concurs with this audit recommendation. Employee accountability will be accomplished through the development and use of the LTIDP process outlined in Recommendation Number 6. Copies of these LTIDPs will be held in each region at one central location so they can be assessed and reported on to ensure accountability for training completion. FS' estimated completion date for this action is March 31, 2011.

OIG Position

We accept FS' management decision on this recommendation. For final action, FS needs to provide the Office of the Chief Financial Officer documentation showing that the agreed upon action has been taken.

Recommendation 11

To encourage employees to obtain certifications in those firefighter positions where they are most needed, create incentives, such as cash awards and formal recognition for those employees who complete their certifications.

Agency Response

FS generally agrees with this recommendation. The WfSST will investigate options for incentives and evaluate which ones will be most effective, based in part on work done in the *Southern Region Workforce and Succession Plan.* Development and implementation of these incentives will occur in coordination with OPM, HRM, and Union input, assistance, and/or agreement as necessary. FS' estimated completion date for this action is March 31, 2011.

OIG Position

We accept FS' management decision on this recommendation. For final action, FS needs to provide the Office of the Chief Financial Officer documentation showing that the agreed upon action has been taken.

Recommendation 12

Increase the role of training officers to be responsible for (a) collaborating with managers and training personnel to maintain efficiency and effectiveness, (b) conducting outreach to engage employees in fire training, (c) ensuring trainees' timely progress to qualify for positions that meet FS' needs, and (d) facilitating timely trainee deployment to support the qualification process.

Agency Response

FS generally concurs with this audit recommendation. A key responsibility of the WfSST will be to further explore training and outreach options and address these issues as part of the strategy and plan for increasing employee participation in fire. FS believes some of these responsibilities are more appropriate for an employee's supervisor. Implementation of the FAMCAT and LTIDP process as outlined in Recommendation Number 6 will ensure that managers and employees are working together closely to ensure that employees are effectively and efficiently obtaining training and deploying in accordance with the agency's needs. FS' estimated completion date for this action is March 31, 2011.

OIG Position

We accept FS' management decision on this recommendation. For final action, FS needs to provide the Office of the Chief Financial Officer documentation showing that the agreed upon action has been taken.

Section 3: Availability

Finding 2: FS' Firefighting Ability Challenged by Lack of Participation

FS' ability to effectively suppress wildfires is challenged by a lack of participation from its firefighters. We determined that voluntary availability and the lack of career incentives have caused most FS firefighters to list themselves as unavailable for the growing number of large, costly fires where they are needed most. As a result, FS faces larger and lengthier wildfire suppression efforts with fewer firefighters, which increases the risk to natural resources, property, and the safety of firefighters.

FS pays to train its employees for firefighting positions but has no formal policy that specifies whether wildfire suppression participation is mandatory or voluntary. After they qualify for firefighter positions, FS practice is to let employees choose whether they will be available for firefighting, what positions they will fill, and where they can be deployed (local, regional, national incidents). Employees who choose to volunteer and are called to duty are not rewarded for doing so but are only evaluated in terms of their primary job responsibilities (e.g., soil scientist). Similarly, qualified employees who do not volunteer are not penalized. Although FS directs its managers to ensure firefighters on their staff are available to participate in local, regional, and national wildland fire incidents as the situation demands,[26] managers are also expected to ensure employees' primary work is accomplished.

This arrangement creates a career disincentive for firefighting availability. For example, a soil scientist who serves as an incident commander risks a lower evaluation if his primary work suffers. A manager who makes her employees available opens herself to a lower rating if they are called to a fire and cannot accomplish their local work. Since FS offers no counterbalancing incentives, such as extra firefighting pay or adjusted work targets, managers and employees have largely chosen not to participate. For example, according to a 2001 study, 88 percent of FS' incident qualified staff said supervisory reluctance to release them for firefighting affected their ability to participate in wildfire emergencies.[27] This number mirrors the availability rate in 2008 when 91 percent of FS' qualified firefighters listed themselves as unavailable to fight national and regional wildfires.

The lack of participation means that FS has the fewest firefighters available to fight the largest, costliest wildfires. Local fires, which 59 percent of firefighters were available for, are typically suppressed more quickly and with fewer resources than larger, more dangerous, national and regional fires. While only 1 percent of wildfires escape FS' early suppression efforts and grow into national and regional fires, they account for 85 percent of FS' suppression costs (averaging over $1 billion per year). Over the years, drought and accumulated fuels (e.g., underbrush) have increased both the frequency and ferocity of these large fires, which has escalated their threat to natural resources and surrounding communities. We believe this trend will likely be exacerbated if FS continues to fight national and regional fires with only 9 percent of its qualified staff.

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[26] FS Manual 5104.22 (June 2005) and 5120.45 (July 2005).
[27] *Where Have All the Firefighters Gone*, prepared by the Brookings Institution (July 2001).

According to an interagency study, mega-fires invariably occur when wildfires stretch capacity and firefighting resources are low.[28]

In addition, a shortage of available firefighters impacts FS' suppression strategies and timeframes. For example, FS may be forced to compensate for fewer firefighters by selecting less aggressive suppression strategies that contain wildfires more slowly at increased risk to nearby natural resources, property, and communities. In addition, those firefighters who are available may be deployed more often and without full crews, which places them in stressful and dangerous situations. This disproportionate burden on the few who volunteer nationally and regionally may worsen over the next 10 years as 86 percent of FS' most experienced and qualified firefighters retire.

To ensure its continued effectiveness in wildfire suppression, we recommend that FS: (1) determine an appropriate level of mandatory participation for qualified firefighters, and (2) provide incentives to managers and employees to counterbalance the impact on local job performance.

Mandatory Availability

Overall, FS firefighter participation is low. During the 2008 fire season, only 2,170 of 24,323 qualified firefighters were available for regional and national assignments.[29] The rest were either unavailable for any firefighting or limited their availability to local fires.[30] This general unavailability directly impacts FS' ability to assemble full complements of firefighting teams and consequently impacts firefighting effectiveness and safety.

For example, over a 6-week period (July 19 through August 29, 2007), FS needed to deploy 19,579 firefighters to national wildfires but could not fill 5,816 positions—30 percent of the firefighters needed were not available.[31] As shown in the table below, for some critical positions, the percentage of unfilled requests was significantly higher.

[28] The Mega-Fire Phenomenon: Toward a More Effective Management Model (September 20, 2005).
[29] The number of FS' available firefighters was estimated using the Resource Ordering Support System (ROSS) database which tracks availability. ROSS does not track the number of individuals who choose to reject fire assignments when called to duty, so FS employees' actual participation might be less than the availability numbers indicate.
[30] Firefighter availability is tracked in ROSS and updated daily. Since ROSS does not contain historical data, we identified and averaged FS firefighter availability based on samples taken for August 20, September 22, October 7, and December 3, 2008.
[31] These numbers are based on firefighter requests from FS and the Department of the Interior. FS' figures could not be isolated because this national data is only maintained on an interagency basis. However, FS is the lead Federal fire management agency and places and fills the majority of firefighter orders.

Critical Incident Position	Ordered	Unfilled	Percent Unfilled
Helicopter Coordinator	32	23	72 percent
Strike Team Leader, Dozer	30	21	70 percent
Helibase Manager (type 1)	168	110	65 percent
Safety Officer, Line	250	156	62 percent
Strike Team Leader, Crew	315	172	55 percent

Table Showing Percentage of Unfilled Orders for Critical Firefighting Positions (July 19 - August 29, 2007)

The unavailability of such key personnel can affect both safety and strategy. For example, the safety officer is responsible for identifying and evaluating hazardous conditions and ensuring that safety procedures are followed. Helicopter coordinators are critical to large, complex fires because they oversee the tactical deployment of multiple helicopters—ensuring pilots are properly qualified, identifying flight hazards, and ordering helicopter resources sufficient to support the firefighting effort.

According to interagency fire reports, incident management teams (IMTs) routinely report firefighting resource shortages as one of their most difficult challenges.[32] At the height of the fire season, many IMTs place orders for firefighting resources that come back unable to be filled for days or weeks at a time. For example, one IMT reported being unable to fill most of its firefighter resource requests and having to "cobble together" resources it could borrow from other agencies and other IMTs to stop a fire that threatened a small community. Another reported that a mid-air collision nearly occurred between two helicopters due, in part, to unfilled requests for helicopter coordinators who would have overseen the tactical deployment of the helicopters and identified and prevented any flight hazards. Other IMTs tasked with suppressing multiple fires at the same time reported that shortages of needed personnel prevented them from responding as ordered. Instead, they were reduced to attacking one fire at a time while the remaining fires burned.

Shortages of firefighters due to insufficient participation has led FS to recruit its retired employees to supplement its wildland fire workforce. These former employees, referred to as "administratively determined" (AD), are intended to provide a short-term increase in FS' wildfire response capability during extreme emergency situations. However, due to the limited availability of its firefighters, FS is increasingly relying on ADs to meet its general wildfire response needs. In 2008, FS had significant numbers of ADs in 51 of the 54 critical firefighter positions. In some cases, ADs represented nearly half of FS' critical wildfire responders. Reliance on ADs is problematic because these individuals have already retired and increase the cost of FS' wildfire suppression activities. For example, in addition to

[32] IMTs are composed of specific types of qualified personnel (i.e., command, operations, logistics, planning, and finance) who coordinate and manage wildfires and other types of emergency responses.

receiving their Federal retirement annuity, some ADs earned more than $70,000 during a single fire season.

Career Incentives

Since firefighting is a collateral, voluntary duty, qualified employees are only evaluated according to their primary job performance (e.g., biologist, accountant, etc.). FS policy states that employees should support the agency's wildfire suppression activities by participating, or by taking up the critical work left by those who do deploy. However, when firefighters are called to duty, many FS managers do not adjust primary job expectations or provide substitute workers, which leaves firefighters less time to accomplish the same amount of work when they return from duty. Therefore, it is usually against employees' best interests to make themselves available for firefighting. Due to their size and complexity, fighting regional and national fires can be especially detrimental to an employee's primary job performance since they are not credited for the firefighting work they perform while away on longer and more frequent deployments.

FS managers are also reluctant to approve availability requests by staff because their own evaluations may suffer if local work targets are not met. As with employees, FS neither adjusts its expectations of managers nor provides replacements for deployed staff, which leaves managers faced with accomplishing the same amount of work with fewer personnel. Since FS does not hold managers accountable for making their staff available—despite the direction to the contrary previously discussed—managers also find it in their best interest to deny or limit their approval for firefighting duty. We found that some supervisors do not let their staff volunteer for any firefighting work.

Another disincentive is that firefighters do not always receive pay commensurate with their firefighting duties. Under FS' current system, firefighters do not receive compensation based on the nature and complexity of the positions they hold during a fire. Instead, they are paid at their primary job's salary, which can lead to inequities. For example, a biologist who is paid $19 per hour but is qualified to be an incident commander will be paid as a biologist even though he or she is responsible for the overall management of FS' wildfire suppression efforts, including firefighting strategy, tactics, and safety.

Employees holding the same fire position may also receive different pay. For example, while the biologist earns $19 per hour serving as an incident commander, an engineer who makes $38 per hour will receive twice as much for the same firefighting work. Alternately, the engineer may serve in a less critical position (e.g., support dispatcher), but still be paid more than the biologist who is an incident commander. Consequently, highly qualified firefighters may be dissuaded from volunteering for critical positions based on their primary job's pay.

FS managers have known for some time that firefighter shortages were occurring. However, because FS had always managed to effectively respond to wildfires in the past, many managers believed that current practices were adequate. While FS is regarded as the premier wildland fire management agency, shortages in critical firefighter personnel may begin to negatively affect its ability to safely and effectively manage incidents and control costs. In order for FS workforce planning efforts to be successful, greater numbers of incident qualified staff must participate in

wildfire emergencies. To accomplish this, we recommend that FS identify optimal participation numbers and require qualified firefighters and trainees to make themselves available for deployment to local, regional, and national fires as the agency's needs dictate. In addition, FS should require personnel with multiple qualifications to be available for the positions that are needed most.

To enable employees to participate when needed, FS managers should also adjust employee work targets while away on firefighting duty or provide temporary replacement staff. To ensure that managers make their employees available for firefighting duty as directed, FS should establish and monitor participation targets based on the agency's local, regional, and national wildland firefighting needs and hold managers accountable for meeting these targets by modifying their annual performance plans and evaluations to include their firefighting responsibilities. FS should also determine whether incentives such as increased pay for performance would significantly increase employee participation. If so, FS should determine the cost benefit of implementing such a change. Finally, FS should identify and remove other obstacles preventing firefighter participation and implement other incentives that would increase firefighter participation.

Recommendation 13

Identify optimal participation numbers and require qualified firefighters and trainees to be available for local, regional, and national fire assignments according to FS' needs.

Agency Response

FS generally concurs with this audit recommendation and agrees that the agency's firefighting ability has been challenged by lack of participation. The agency will continue to develop and take additional steps to address this challenge. The WfSST will develop a Strategic Plan for redesigning the agency's current firefighting business model, as discussed in response to Recommendation Numbers 2 and 6. That plan will identify appropriate participation numbers and outline actions necessary to ensure that participation is incentivized to align with the agency's redesigned firefighting business model. The agency will then take the appropriate actions – as outlined in the Plan – after they are approved by agency leadership. FS' estimated completion date for this action is March 31, 2011.

OIG Position

We accept FS' management decision on this recommendation. For final action, FS needs to provide the Office of the Chief Financial Officer documentation showing that the agreed upon action has been taken.

Recommendation 14

Direct managers to adjust employee work targets while away on firefighting duty or provide temporary replacement staff.

Agency Response

FS generally agrees with the third Finding that the agency's firefighting ability has been challenged by lack of participation and that taking steps to address that challenge is important. The WfSST will develop a Strategic Plan for redesigning the agency's current firefighting business practices, as discussed in response to Recommendation Number 2. That plan will identify actions necessary to ensure that participation is incentivized and programs of work are adjusted to align with the agency's redesigned firefighting business model. The agency will then take the appropriate actions – as outlined in the Plan – after they are approved by agency leadership. FS' estimated completion date for this action is March 31, 2011.

OIG Position

We accept FS' management decision on this recommendation. For final action, FS needs to provide the Office of the Chief Financial Officer documentation showing that the agreed upon action has been taken.

Recommendation 15

Establish and monitor annual firefighter participation targets based on the agency's local, regional, and national wildland firefighting needs.

Agency Response

FS generally agrees with the Finding that the agency's firefighting ability has been challenged by lack of participation and that taking steps to address that challenge is important. The WfSST will develop a Strategic Plan for redesigning the agency's current firefighting business practices, as discussed in response to Recommendation Numbers 2 and 6. That plan will identify appropriate participation numbers and outline actions necessary to ensure that participation is incentivized to align with the agency's redesigned firefighting business model. The agency will then take the appropriate actions – as outlined in the Plan – after they are approved by agency leadership. FS' estimated completion date for this action is March 31, 2011.

OIG Position

We accept FS' management decision on this recommendation. For final action, FS needs to provide the Office of the Chief Financial Officer documentation showing that the agreed upon action has been taken.

Recommendation 16

Modify managers' annual performance plans and evaluations to include their responsibility for meeting agency firefighter participation targets.

Agency Response

FS generally agrees with the third Finding that the agency's firefighting ability has been challenged by lack of participation and that taking steps to address that challenge is

important. The WfSST will develop a Strategic Plan for redesigning the agency's current firefighting business practices, as discussed in response to Recommendation Numbers 2 and 6. That plan will identify actions to ensure that managers encourage firefighting participation in alignment with the agency's redesigned firefighting business model. The agency will then take the appropriate actions – as outlined in the Plan – after they are approved by agency leadership. FS' estimated completion date for this action is March 31, 2011.

OIG Position

We accept FS' management decision on this recommendation. For final action, FS needs to provide the Office of the Chief Financial Officer documentation showing that the agreed upon action has been taken.

Recommendation 17

Evaluate whether incentives such as increased pay for performance would significantly increase employee participation. If so, determine the cost benefit of implementing such a change.

Agency Response

FS generally agrees with this audit recommendation. The WfSST will evaluate whether incentives would increase employee participation and if so, determine the cost-benefit of implementing them. The WfSST will begin with the work done in the *Southern Region Workforce and Succession Plan.* Development and implementation of these incentives will occur in coordination with OPM, HRM, and Union input, assistance, and/or agreement as necessary. FS' estimated completion date for this action is March 31, 2011.

OIG Position

We accept FS' management decision on this recommendation. For final action, FS needs to provide the Office of the Chief Financial Officer documentation showing that the agreed upon action has been taken.

Recommendation 18

Identify and remove other obstacles preventing firefighter participation and implement other incentives that would increase firefighter participation.

Agency Response

FS generally agrees with this recommendation. The WfSST will identify other obstacles preventing firefighting participation and determine whether incentives could be implemented that would increase participation. The WfSST will begin with the work done in the *Southern Regional Workforce and Succession Plan.* Development and implementation of these incentives will occur in coordination with OPM, HRM, and Union input, assistance, and/or agreement as necessary. FS' estimated completion date for this action is March 31, 2011.

OIG Position

We accept FS' management decision on this recommendation. For final action, FS needs to provide the Office of the Chief Financial Officer documentation showing that the agreed upon action has been taken.

Finding 4: Unnecessary Education Requirements Compromise FS' Firefighting Force

FS' ability to fight fires may soon be compromised if FS continues to classify certain of its fire management staff under a job series for natural resources management and biological sciences (GS-401). The series makes academic coursework a precondition for employment, but many FS staff may not meet this requirement by an October 2010 deadline established by the Office of Personnel Management (OPM). Although intended to increase safety by upgrading certain fire management staffs' educational requirements, classifying these staff under the GS-401 series will likely have the opposite effect. FS may soon be fighting fires with less than half of its key fire management staff available to oversee firefighting operations and firefighter safety. Further, FS has invested considerable resources in employees' taking classes required by the job series (e.g., college physics), even though these classes are only loosely related to their jobs (e.g., fire program manager). In light of the risk and increased costs, FS should discontinue use of the job series for specified positions and decide on a more appropriate series based on the skills and knowledge needed by its fire management staff.

Safety concerns arising from prior fire accidents motivated FS and four other agencies[33] to develop interagency fire program management (IFPM) standards to improve fire knowledge and training for key fire management positions.[34] FS also elected to develop similar fire program management standards for a number of sub-unit positions unique to the agency in a process referred to as FS Fire Program Management (FS-FPM). Based on these standards, FS asked OPM to create a new job series for certain of its fire management positions.[35] Since OPM seeks to use existing job series whenever possible, it instead suggested that FS use existing job series. After consulting with DOI, FS chose to classify six of the IFPM positions and four of the FS-FPM positions into GS-401 ("General Biological Sciences").[36] The GS-401 series required either a degree in a relevant field or 24 semester units in biology or natural resources management.

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[33] The four agencies are the Bureau of Land Management, the Fish and Wildlife Service, the National Park Service, and the Bureau of Indian Affairs, all under the Department of the Interior (DOI). These four agencies are FS' major Federal firefighting partners.

[34] Subsequent reports on the prior fire accidents called for agency administrators and senior managers to take interagency courses related specifically to firefighting to ensure that they had the fire training and knowledge necessary to effectively manage and oversee wildland fire programs and operations. (See *Federal Wildland Fire Management Policy and Program Review*, Final Report (December 1995); *Final Report of the Interagency Management Review Team: South Canyon Fire* (June 1995); and *Identifying the Organizational Culture, Leadership, Human Factors, and Other Issues Impacting Firefighter Safety*, prepared by the TriData Corporation (October 1996).)

[35] The IFPM fire management positions targeted for the GS-401 job series were unit fire program manager, geographic area fire program manager, national fire program manager, center manager, wildland fire operations specialist, and prescribed fire and fuels specialist. The targeted FS-FPM positions included unit fire program manager, sub-unit fire program manager, sub-unit wildland fire operations specialist, and sub-unit fire and fuels specialist. The use of the term "fire management staff" throughout this finding refers only to those FS staff in one of the positions identified by the IFPM or FS-FPM process for reclassification to the GS-401 series.

[36] OPM policy allows Federal agencies to reclassify positions if and when changes in duties and responsibilities make a current classification inappropriate. Reclassification actions should include an agency's analysis of the targeted position's responsibilities and why the reclassification action is warranted. Actions involving a professional job series with education requirements such as GS-401 must also justify the use of the job series by demonstrating that the targeted position cannot be performed by individuals lacking the required education. A Federal agency cannot choose to reclassify an existing position into a professional job series simply because it wishes to professionalize its workforce. At the time of our

IFPM's purpose was to increase firefighter safety through standardized fire position descriptions and mandatory firefighter training. Recognizing that college degrees or their equivalent in biology or natural resource management were not geared towards the technical knowledge needed by its fire staff, FS and DOI worked with OPM to develop a fire specific supplemental education standard they could use when qualifying fire staff for the GS-401 positions. Use of this supplemental standard was a key component of the IFPM process. According to IFPM coordinators, Agriculture and Interior department officials directed a hold on IFPM implementation until OPM's approval of the supplemental standard.

OPM initially agreed to accept more focused courses developed by FS and its DOI partner agencies specifically related to firefighting, such as fire risk assessment and fire management leadership. In July 2002, OPM approved the Supplemental Qualification Standard for GS-401 Fire Management Specialist positions that outlined specific National Wildfire Coordinating Group (NWCG) firefighter courses FS and DOI staff could take to meet the series' positive education requirement. There was no expectation at the time that FS and DOI fire staff would be required to have college degrees or their equivalent in biology and natural resource management to meet the IFPM Standard.

In October 2004, FS began to transition IFPM affected fire management staff into the new series.[37] Six months later, in February 2005, OPM announced that only classes at accredited colleges would count for professional series such as GS-401. The new policy was initiated due to OPM's concerns about the use of "diploma mills" to meet positive education requirements. The NWCG fire courses listed on the supplemental standard, although taught by fire experts and highly regarded in the firefighter community, did not qualify as credits obtained from an accredited college or university. FS sought a waiver from OPM to allow continued use of the NWCG fire courses when qualifying staff for the IFPM and FS-FPM fire positions. OPM refused, because setting aside the academic education requirements of the GS-401 series was contrary to Federal regulation and would set a poor precedent for other Federal agencies that also used professional series. According to OPM, if FS wished to continue using the GS-401 series, employees would have to meet the series' academic requirements.

OPM's policy change placed FS in a difficult position because many of its key fire management staff were suddenly not qualified for positions they had held for years. Hundreds of hours spent in fire courses that focused on sharpening the technical skills necessary to manage fires were no longer sufficient. Instead, these fire staff risked being removed from their positions if they did not complete classes such as physics and microbiology by the IFPM October 1, 2010, deadline.[38]

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audit, FS provided no evidence that it had performed the appropriate analysis to justify its reclassification actions or its selection of the GS-401 job series for the six IFPM and four FS-FPM fire management positions.

[37] FS-FPM was implemented at a later date (October 2008) with a 2013 completion deadline.

[38] FS' fire staff are subject to two October 2010 deadlines. The OPM deadline applies to those FS fire staff who were transitioned into GS-401 positions and later determined not to meet the series' educational requirements. These individuals must meet the GS-401 education requirements by October 2010 or be removed from their current positions. FS fire staff still in the process of being reclassified to the GS-401 series are subject to an interagency IFPM deadline of October 2010. This deadline can be extended if FS chose to do so; however, at the time of our audit there was no indication that FS planned to extend the IFPM deadline. FS fire staff not meeting the GS-401 education requirement by the IFPM deadline are also subject to removal from their current positions.

FS considered switching to a job series that did not require academic coursework, but did not pursue the change because it wanted to be consistent with DOI, which was continuing to classify its fire staff using the GS-401 series. The 1995 Federal Wildland Fire Management Policy and Program Review recommended that Federal wildland fire agencies establish uniform fire management qualifications standards to improve firefighter safety and increase the level of skill and competence in fire management programs. To maintain interagency consistency, FS continued with the GS-401 series despite its concerns.

Our review concluded that the lack of a connection between the GS-401 series' academic requirements and fire staffs' professional proficiency could diminish FS' firefighting effectiveness and safety. Time and money devoted to college classes takes away from focused fire training that strengthens specific fire management skills and knowledge. For example, FS has spent a significant amount of its training budget for its fire staff to take courses satisfying the GS-401 job series' requirements instead of improving their job performance. We estimate the overall cost to be at least $15.7 million based on 656 employees needing to take 24 academic credits at an average cost of $1,000 per credit.[39] In terms of safety, FS receives little value for every training dollar spent on its fire staff taking microbiology classes. Also, some veteran fire personnel have chosen to retire rather than to take unnecessary college classes in order to qualify for jobs they have performed successfully for decades. In our interviews, many echoed the opinion of one fire manager who wrote:

> *I have made a personal decision to remove myself from the fire management position (slated for reclassification to the GS-401 series). I cannot support a system that does not take into consideration 36 years of experience, 300 hours of fire management training, and indicates that I am not qualified to be a professional fire manager because I lack 24 college credits.*

In addition to losing fire staff with proven track records, these losses also affect FS' firefighter succession planning because there will be fewer veteran managers to mentor the next generation of firefighters. It also makes it more difficult for FS to recruit new firefighters in States like California where firefighting organizations have no such education requirement.

Since those FS fire staff subject to the GS-401 education requirement work full-time and are needed during the fire season, it is likely that few will be able to obtain the units needed to keep their jobs. At the time of our audit, we estimated that up to 236 of FS' 456 IFPM affected fire staff slated for classification to this series (52 percent) might not meet the educational requirements by the October 2010 deadline.[40] As a result, in the 2010 fire season and beyond, FS may find itself fighting fires with less than half of its key fire staff.

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[39] This amount is based on FS' $1,000 per credit estimate that includes anticipated travel costs for 456 IFPM and 200 FS-FPM employees but excludes salaries and university tuition that are also reimbursed by the Government. It also assumes impacted fire staff lack any courses meeting the series' specific education requirements and therefore reflects a "worse-case" scenario. However, given the technical nature of fire staffs' previous job requirements and FS' conservative per unit cost estimate, we believe this estimate more accurately reflects the series' financial impact. FS could not provide us actual cost data relating to GS-401 related courses because it does not currently track this information.

[40] Because the FS-FPM process was implemented at a later date and has a 2013 deadline, only IFPM affected employees were included in this estimate, which at the time of our audit comprised 162 employees who had not begun or completed their qualifying classes and 74 employees whose qualifying courses might be rejected because FS approved classes without ensuring they met OPM's academic requirements. In addition to specifying types, OPM also requires that classes go towards a single major (e.g., biology). So, a fire manager may have the required number of units (24), but the classes may be spread so that they do not satisfy a single major's requirements. For example, a manager who has taken physics,

To prevent this from happening, we reported our findings to the former FS Chief in November 2008 in a management alert that recommended FS discontinue using the GS-401 job series to reclassify its fire staff for the IFPM fire management positions previously discussed. We also recommended that FS coordinate with OPM to develop an alternative to classifying the IFPM fire management positions under the GS-401 job series. For example, in light of the series' failure to reflect firefighters' specialized education and training, FS can work with OPM to justify its need for a unique firefighter series.

After discussing our concerns with FS officials prior to the issuance of the management alert and recognizing that use of the GS-401 series has been, and continues to be, very controversial within the agency, FS' former Chief felt it appropriate to take some immediate action while OIG finishes its review and issues a formal report. In October 2008, the former Chief directed all FS units to stop further implementation of the GS-401 series at grades GS-9 through 12. Ongoing training in courses with college accreditation was allowed to continue for those employees considering progressing to leadership positions at the GS-13 grade level and above. According to the former Chief, once the final report is issued, FS will assess the recommended actions and develop the appropriate policy and path forward. The path forward will include appropriate series classifications that meet the operational needs of FS. In its December 2008 written response to the management alert, FS stated it had issued interim direction further clarifying the former Chief's position on the limited use of the GS-401 job series until the OIG report is issued.

Recommendation 19

Immediately discontinue the use of the GS-401 series to reclassify staff for the six IFPM and four FS-FPM fire management positions.

Agency Response

FS did not respond to this recommendation.

OIG Position

Management decision pending FS' response.

Recommendation 20

Coordinate with OPM to develop an alternate to classifying the IFPM and FS-FPM fire management positions under the GS-401 job series, such as creating a new wildland firefighter series, or classifying staff under existing series with more appropriate experience and training requirements.

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botany, zoology, meteorology, and entomology will likely not meet the GS-401 series' education requirement even though he/she has taken a sufficient number of classes. Since FS approved 74 managers based on the number and type of classes but not their major grouping, an upcoming qualification review by OPM may disqualify some or all of them. Given that fire management staff subject to the FS-FPM process may also fail to meet the GS-401 education requirements, the number of FS employees subject to possible termination could be considerably higher than the cited estimate.

Agency Response

FS will continue to coordinate with OPM and DOI to explore alternatives to classifying these fire management positions under the GS-401 job series, including creating a new wildland firefighter series or classifying staff under an existing series. FS' estimated completion date for this action is March 31, 2011.

OIG Position

We accept FS' management decision on this recommendation. For final action, FS needs to provide the Office of the Chief Financial Officer documentation showing that the agreed upon action has been taken.

Scope and Methodology

The purpose of our review was to assess the adequacy of FS' overall succession planning activities relating to its critical wildland fire personnel. Our audit primarily covered planning, recruitment, retention, and training policies and procedures affecting FS' ability to meet its future wildfire suppression responsibilities. We also evaluated other factors or barriers affecting FS' ability to fulfill its primary wildfire suppression mission.

To accomplish our audit objectives, we performed audit work at FS' National Headquarters in Washington, D.C.; National Interagency Fire Center in Boise, Idaho; Albuquerque Service Center in Albuquerque, New Mexico; and Northern California Geographic Area Coordination Center in Redding, California. In addition, we contacted OPM to obtain information on position classification procedures and the education requirements of the GS-401 series.

While FS staff perform 361 different firefighter functions, our audit analyses focused primarily on 54 positions that FS and OIG determined to be the most critical to effective wildfire management. In completing this review, we looked at documentation generally covering the period 2004 to the present. Fieldwork was performed between March 2008 and April 2009.

In developing the findings in this report, we performed the following steps and procedures:

At FS' National Headquarters:

- Reviewed applicable laws, regulations, policies, and procedures pertaining to the preparation and implementation of a workforce succession plan.
- Interviewed key FS national headquarters staff to obtain an understanding of current FS firefighter succession planning activities, including FS' recruitment and retention strategies, firefighter training program, and firefighter mobilization process.
- Interviewed key FS national headquarters staff to obtain an understanding of the IFPM process and its effect on firefighter recruitment and retention.

At the National Interagency Fire Center:

- Met with key FS staff prior to the initiation of the audit to obtain their insights, observations, and concerns relating to FS' firefighter succession planning process and used this input to guide the development of our audit coverage.
- Discussed FS' firefighter training, qualification, and mobilization processes and recruitment and retention activities.
- Ascertained how firefighter data is input, maintained, and updated in IQCS and ROSS to facilitate an in-depth analysis of firefighter training, qualification, and mobilization information.

At the Albuquerque Service Center:

- Discussed workforce planning activities with key FS staff and the extent to which firefighters are included in those planning activities.
- Interviewed Human Capital Management (HCM) staff to obtain an understanding of FS' interpretation of the GS-401 education requirements and the status of HCM's academic education reviews.
- Obtained and reviewed IFPM employee data used to quantify the number of FS employees affected by FS' use of the GS-401 series and possible costs associated with that activity.

At the Northern California Geographic Area Coordination Center:

- Interviewed key interagency wildfire support staff to obtain an understanding of the firefighter training and mobilization processes in place at the local, geographic, and national levels.
- Obtained and reviewed IQCS and HCM data pertaining to FS firefighter training, mobilization, and retirement processes. The HCM data we obtained from FS was unaudited. We conducted limited testing of the IQCS data while reconciling it with the HCM data.

We conducted this performance audit in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

Abbreviations

AD ..... Administratively Determined
DOI ..... Department of Interior
FAM ..... Fire and Aviation Management
FAMCAT ..... Fire and Aviation Management Career Assessment Tool
FS ..... Forest Service
FS-FPM ..... Forest Service Fire Program Management
HCM ..... Human Capital Management
HR ..... Human Resources
HRM ..... Human Resources Management
IDP ..... Individual Development Plan
IFPM ..... Interagency Fire Program Management
IMT ..... Incident Management Team
IQCS ..... Incident Qualification and Certification System
LTIDP ..... Long-Term Individual Development Plan
NWCG ..... National Wildfire Coordinating Group
OIG ..... Office of Inspector General
OPM ..... Office of Personnel Management
ROSS ..... Resource Ordering Support System
USDA ..... United States Department of Agriculture
WfP&PA ..... Workforce Planning and Program Analysis
WfSST ..... Workforce and Succession Planning Strategic Team

Exhibit A: Summary of Monetary Results

Recommendation Number	Description	Amount	Category
7	Annual amount FS paid for training courses its employees took that **never qualified** for firefighter positions	$11,800,000 (estimated)	FTBPTBU[41] – Management Improvements
19	Amount FS will pay for employees to take college courses **unrelated** to firefighting in order to meet the GS-401 series' educational requirements	$15,700,000 (estimated)	FTBPTBU – Management Improvements
TOTAL		$27,500,000	

Exhibit A presents the two recommendations we made to the agency where future savings would occur if the agency took the recommended actions. There are four columns in this exhibit. The first column lists the recommendation number. The second column describes why the funds were inefficiently used. The third column states the amount of funds that were inefficiently used. The fourth column states the funds could be put to better use through management improvements.

[41] FTBPTBU – Funds To Be Put To Better Use

Exhibit B: Difference in Number of Qualified firefighters Versus Trainees in FS'Critial Firefighter Positions

Critical Firefighter Position	No. of Qualified	Avg. Age Qualified	No. of Trainees	Avg. Age Trainee	Difference[42]
Area Command:					
Area Commander	6	57.7 yrs	4	56.6 yrs	-2 (33%)
Area Commander Aviation Coordinator	9	57.7 yrs	5	54.3 yrs	-4 (44%)
Assistant Area Commander, Planning	14	60 yrs	4	56 yrs	-10 (71%)
Assistant Area Commander, Logistics	8	60.9 yrs	7	57.9 yrs	-1 (13%)
Total No. and Average Age – Area Command	**37**	**59.3 yrs[2]**	**20**	**56.4 yrs[2]**	
Command & General:					
Incident Commander, Type 1	27	55.7 yrs	3	49 yrs	-24 (89%)
Incident Commander, Type 2	66	54.5 yrs	33	51.3 yrs	-33 (50%)
Incident Commander, Type 3	817	48.3 yrs	456	41.7 yrs	-361 (44%)
Safety Officer, Type 1	32	57.5 yrs	20	54.5 yrs	-12 (38%)
Safety Officer, Type 2	274	55.8 yrs	125	51.7 yrs	-149 (54%)
Safety Officer, Line	131	52.3 yrs	226	44.2 yrs	+95 (73%)
Public Information Officer, Type 1	60	56.7 yrs	48	51.3 yrs	-12 (20%)
Public Information Officer, Type 2	191	54.5 yrs	115	52.7 yrs	-76 (40%)
Total No. and Average Age – Command & General	**1,598**	**51.5 yrs[2]**	**1,026**	**45.7 yrs[2]**	
Operations:					
Operations Section Chief, Type 1	70	53.8 yrs	27	52.5 yrs	-43 (61%)
Operations Section Chief, Type 2	287	53 yrs	168	48.6 yrs	-119 (41%)
Division/Group Supervisor	1,171	48.8 yrs	363	40.8 yrs	-808 (69%)
Task Force Leader	1,341	44.3 yrs	581	38.3 yrs	-760 (57%)
Structure Protection Specialist	16	56.5 yrs	8	46.6 yrs	-8 (50%)
Strike Team Leader, Tractor/Plow	13	51.7 yrs	2	48.5 yrs	-11 (85%)
Strike Team Leader, Dozer	258	47.5 yrs	41	43.7 yrs	-217 (84%)
Strike Team Leader, Engine	998	45.1 yrs	368	37.5 yrs	-630 (63%)
Strike Team Leader, Crew	1,336	45.1 yrs	403	37.8 yrs	-933 (70%)
Total No. and Average Age – Operations Group	**5,490**	**46.4 yrs[2]**	**1,961**	**39.7 yrs[2]**	
Air Operations:					
Air Operations Branch Director	68	54.3 yrs	30	53.8 yrs	-38 (56%)
Air Support Group Supervisor	119	51.9 yrs	44	47.3 yrs	-75 (63%)
Air Tactical Group Supervisor	141	54 yrs	106	46.6 yrs	-35 (25%)
Helibase Manager, Type 1	169	47.6 yrs	71	43.9 yrs	-98 (58%)
Helibase Manager, Type 2	267	45.7 yrs	120	40.2 yrs	-147 (55%)
Helicopter Manager	158	44.1 yrs	36	36.1 yrs	-122 (77%)
Helicopter Coordinator	30	53.8 yrs	24	46.2 yrs	-6 (20%)
Total No. and Average Age – Air Operations Group	**952**	**48.6 yrs[2]**	**431**	**44.0 yrs[2]**	

[42] Difference = Number of Qualified – Number of Trainees

Critical Firefighter Position	No. of Qualified	Avg. Age Qualified	No. of Trainees	Avg. Age Trainee	Difference[1]
Planning:					
Planning Section Chief, Type 1	45	57.9 yrs	6	54.6 yrs	-39 (87%)
Planning Section Chief, Type 2	95	57 yrs	19	57.5 yrs	-76 (80%)
Situation Unit Leader	97	53.6 yrs	76	50.1 yrs	-21 (22%)
Resource Unit Leader	257	52.8 yrs	142	53.4 yrs	-115 (45%)
Demobilization Unit Leader	142	53.7 yrs	65	51.2 yrs	-77 (54%)
Fire Behavior Analyst	86	52.1 yrs	25	47.7 yrs	-61 (71%)
Long Term Fire Analyst	33	51.1 yrs	17	46.3 yrs	-16 (48%)
Total No. and Average Age – Planning Group	**755**	**53.8 yrs[2]**	**350**	**51.8 yrs[43]**	
Logistics:					
Logistics Section Chief, Type 1	46	58 yrs	10	53.8 yrs	-36 (78%)
Logistics Section Chief, Type 2	114	58.2 yrs	19	54.9 yrs	-95 (83%)
Food Unit Leader	88	58.2 yrs	65	54.2 yrs	-23 (26%)
Communication Unit Leader	76	54.5 yrs	13	48.1 yrs	-63 (83%)
Supply Unit Leader	132	55.5 yrs	51	53.7 yrs	-81 (61%)
Facility Unit Leader	186	57.1 yrs	57	51.7 yrs	-129 (69%)
Ground Support Unit Leader	144	57.4 yrs	77	54.9 yrs	-67 (47%)
Base/Camp Manager	248	53.8 yrs	211	48.3 yrs	-37 (15%)
Equipment Manager	267	55.3 yrs	323	50.4 yrs	+56 (21%)
Incident Communications Center Mgr.	95	52.5 yrs	87	50.4 yrs	-8 (8%)
Ordering Manager	212	52.9 yrs	141	51.8 yrs	-71 (33%)
Total No. and Average Age – Logistics Group	**1,608**	**55.4 yrs[2]**	**1,054**	**51.0 yrs[2]**	
Finance/Administration:					
Finance Section Chief, Type 1	37	56.5 yrs	11	56.2 yrs	-26 (70%)
Finance Section Chief, Type 2	73	55.9 yrs	24	53.8 yrs	-49 (67%)
Cost Unit Leader	99	52.7 yrs	62	51.9 yrs	-37 (37%)
Procurement Unit Leader	30	50.3 yrs	23	48.1 yrs	-7 (23%)
Time Unit Leader	153	53.7 yrs	87	51.8 yrs	-66 (43%)
Compensation/Claims Unit Leader	57	55.5 yrs	21	54.2 yrs	-36 (63%)
Total No. and Average Age – Finance/Admin. Group	**449**	**54.1 yrs[2]**	**228**	**52.1 yrs[2]**	
Dispatch:					
Expanded Dispatch Coordinator	53	56.2 yrs	36	54.2 yrs	-17 (32%)
Expanded Dispatch Supv. Dispatcher	187	54 yrs	93	49.2 yrs	-94 (50%)
Total No. and Average Age – Dispatch Group	**240**	**54.5 yrs[2]**	**129**	**50.6 yrs[2]**	
Total Number of Responders	**11,129**		**5,199**		
Average Age of All Groups		**49.6 yrs[2]**		**45.3 yrs[2]**	
Overall Number of Trainee Imbalance (%)					**-5,930 (53%)**

[43] Calculated totals reflect weighted averages as of July 18, 2008.

Exhibit B presents the difference in the number of qualified firefighters holding critical firefighting positions versus those training for the positions. There are six columns in this exhibit. The first column lists the critical firefighter position. The second column lists the number of qualified firefighters currently holding the critical firefighter position. The third column lists the average age of the qualified firefighters. The fourth column lists the number of firefighters training for the critical firefighter position. The fifth column lists the average age of the trainees. The sixth column shows the percentage difference between the numbers of qualified firefighters holding the critical firefighting position versus those training for the position.

Exhibit C: Estimated Percentage of Employees That Did Not Obtain Certification after Attending Training for Firefighting Positions

Course Number	Course Description	Target Position[44]	Number Attending Class	Projected Number Not Obtaining Certification[45]	Estimated Training Inefficiency (%)[46]
S-403	Incident Information Officer	Incident Information Officer (Type 2)	43	43	100%
S-470	Air Operations Branch Director	Air Operations Branch Director	11	11	100%
S-460	Finance/Administration Section Chief	Finance/Administration Section Chief (Type 2)	1	1	100%
S-271	Helicopter Crewmember	Helicopter Crew Member	258	230	89%
S-330	Task Force/Strike Team Leader	Task Force Leader/Strike Team Leader	900	783	87%
S-400	Incident Commander	Incident Commander (Type 2)	10	9	87%
S-378	Air Tactical Group Supervisor	Air Tactical Group Supervisor	41	31	76%
S-430	Operations Section Chief	Operations Section Chief (Type 2)	36	27	75%
S-404	Safety Officer	Safety Officer (Type 2)	111	81	73%
S-354	Facilities Unit Leader	Facilities Unit Leader	23	14	61%
S-450	Logistics Section Chief	Logistics Section Chief (Type 2)	7	4	57%
S-300	Incident Commander - Extended Attack	Incident Commander (Type 3)	187	101	54%
S-203	Introduction to Incident Information	Public Information Officer	144	76	53%

Exhibit C presents the estimated percentage of employees that did not obtain certification after attending training for firefighting positions. There are six columns in this exhibit. The first

[44] All of the firefighter positions listed below are critical except for the Incident Information Officer (Type 2) and the Helicopter Crew Member. These were included to also illustrate the high degree of inefficiency in non-critical positions.
[45] The "Projected Number Not Obtaining Certification" was calculated by multiplying the "Estimated Training Inefficiency" by the "Number Attending Class."
[46] The "Estimated Training Inefficiency" was calculated by adding together the percentage of FS staff who (1) attended a fire training class but did not initiate the next step (i.e., did not open a position task book) and (2) opened a position task book but then allowed it to expire. Fire training and position task book data was obtained from IQCS.

column lists the course number. The second column lists the course description. The third column lists the target position for which the employee was seeking certification. The fourth column lists the number of employees attending the class. The fifth column lists the projected number of employees attending the class that did not obtain a certification. The sixth column shows the estimated training inefficiency.

USDA'S

FOREST SERVICE

RESPONSE TO AUDIT REPORT

Forest Service | Washington Office | 1400 Independence Avenue, SW Washington, DC 20250

File Code: 1430/5100 Date: March 29, 2010
Route To:

Subject: Response to Office of the Inspector General Official Draft Report No. 08601-54-SF, "Forest Service's Firefighting Succession Planning Process"

To: Robert W. Young, Assistant Inspector General for Audit, Office of Inspector General, USDA

The Forest Service has reviewed the Office of the Inspector General (OIG) draft Audit Report No. 08601-54-SF, Forest Service's Firefighting Succession Planning Process. The Agency appreciates OIG's review of its fire and aviation program and fire response activities. This audit identifies fundamental issues that we too recognize spring from the Agency's longstanding firefighting business practices. The Forest Service generally supports Findings 1 through 4 and corresponding Recommendations 1 through 20; and the urgent need to address these issues. However, numerous ongoing intra- and interagency efforts must be considered and integrated.

The Secretaries of the Department of Agriculture and the Department of the Interior are also focusing on wildland fire management through development of the Cohesive Strategy required in the FLAME Act. Three components comprise this strategy: 1) landscape-scale restoration; 2) fire adapted communities; and 3) wildland fire response. This audit addresses, in part, the third component, response to fire. Be assured that we are intent on determining its changing role in large fire suppression, how we fulfill that role (e.g. contract, force account, local cooperators, etc.), and the corresponding workforce needed to implement that role.

Other concurrent efforts include, but are not limited to:

- Master Agreement National Federation of Federal Employees Negotiations,
- The interagency firefighter study,
- Modifications to the 2003 Implementation Guide for the Federal Wildland Fire Management Policy,
- The National Wildfire Coordinating Group analysis of Incident Management Team succession,
- Fire Program Analysis including both initial response and large fire response, and
- The connection to Interagency Fire Program Management and Forest Service-Fire Program Management.

All these efforts figure in the changing nature of wildland fire management, and relate to the overall decline in participation, particularly by the "militia," on large fire management and support. They point to the ongoing challenge of maintaining the viable workforce necessary to manage hazardous fuels and wildland fire in the current environment.

Based on careful consideration of the audit findings and other ongoing efforts, a new business model is required to address the report's recommendations. Eight of the recommendations in Findings 2 and 3 outline tactical actions that attempt to fix the Agency's firefighting business model. While we concur with the conclusions, the Agency would be better served by designing and implementing a new model rather than expending the energy needed to repair a decades-old model that no longer serves its purpose. We recognize that we cannot continue to manage our large fires as we have in the past. We will develop a strategy that will set our future course for wildland firefighting. Elements of that strategy will be based on the Workforce and Succession Plan model recently prepared by our Southeast Region. This plan was prepared by national, regional, and Human Resource Management Workforce Planning staff; it addresses many of the issues in this report.

The enclosed response outlines our proposed actions for each of the audit recommendations. Please contact Donna Carmical, Chief Financial Officer, at (202) 205-1321 or dcarmical@fs.fed.us with any questions.

/s/ Hank Kashdan (for)
THOMAS L. TIDWELL
Chief

cc: Sandy T Coleman
Jaelith H Rivera
Wm C Waterbury

Enclosure

United States Department of Agriculture
Forest Service (FS)

Office of Inspector General (OIG) Official Draft Audit Report No. 08601-54-SF
Forest Service's Firefighting Succession Planning Process

March 25, 2010

FS Response to Official Draft Report

OIG Recommendation 1: Assign responsibility for firefighter qualification workforce planning to a top level official at the FS Washington office.

FS Response to Recommendation No. 1: The FS concurs with this audit recommendation and will assign the responsibility for firefighter qualification workforce planning to the Director, Fire and Aviation Management (FAM). The Director, FAM, will work in close coordination and support with the Director, Human Resources Management. This firefighter qualification workforce planning process will address firefighter position qualifications for all firefighters, including the militia. This relationship and expected results will be formally documented in a letter to both the Directors.

Estimated Completion Date: April 15, 2010

OIG Recommendation 2: Establish a team to initiate, guide and monitor the agency's firefighter workforce planning process.

FS Response to Recommendation 2: The FS concurs with this audit recommendation and will establish an interdisciplinary "Workforce and Succession Planning Strategic Team" (WfSST) that includes staff from Human Resources Management (HRM), Fire and Aviation Management (FAM), and other national, regional and local line and staff, as applicable. The WfSST will be formed to focus on creation of a Strategic Plan for redesigning the agency's firefighting business model. The Director of FAM will designate a program manager for this Team who will report directly to the Director, FAM. The WfSST Program Manager will initiate, guide and monitor the agency's overall firefighter workforce planning effort, which will cover fire management positions and the "militia", utilizing FS workforce planning efforts underway. Currently the FS uses the Workforce Planning and Program Analysis (WfP&PA) tool and develops a Workforce Plan to facilitate workforce planning throughout all levels of the agency. The agency will build on those efforts, but will address all firefighters, not just those job codes are specific to fire management.

Estimated Completion Date: April 30, 2010

OIG Recommendation 3: Create a unique identifier for each FS employee in both the IQCS and HR database that codes the employee's position as a fire-staff or fire-militia to facilitate analysis needed to support firefighter workforce planning.

FS Response: The FS concurs with this audit recommendation. This task will be coordinated by the FAM WfSST Program Manager. The Program Manager will work in collaboration with HRM to determine the needed resources, the feasibility of the work, the resources required to implement such an identifier, and implications to other agencies and cooperators. This action is likely to require a full year for feasibility study alone.

Estimated Completion Date: March 31, 2011

OIG Recommendation 4: Develop a national workforce plan based on firefighters' position qualifications that focuses on identifying, assessing, and meeting specific workforce needs relative to FS' strategic goals and objectives and that establishes specific regional and unit goals and timeframes in relation to national firefighter qualification needs.

FS Response: The FS concurs with this audit recommendation. Development of the National Firefighting Workforce and Succession Plan, which will address firefighter position qualifications for all firefighters, including the militia, will be overseen by the WfSST established in response to Recommendation Number 2, by working closely with the HRM Workforce Planning unit. The analysis of current staffing and current known vacancies will be assessed near term using current workforce planning tools and other efforts underway at the FS. The ensuing plan will form the basis for redesigning the agency's current firefighting business model and will address all firefighters, including the militia.

Each Region will assess the extent and nature of its respective FAM organizations and militia responders based on metrics which characterize fire occurrence, fuel types, fuels treatment/fire recurrence intervals, coordination, cooperator capability etc. Currently, each Region utilizes the Workforce Planning and Program Analysis (WfP&PA) tool to address workforce planning. Regional data is included in a standard template and published in Workforce Plans as required by Human Resources Management (HRM) guidance. As the regional plans are broadened to address all firefighters, including militia, and then finalized, the Regional plans can then be rolled up into the overall National Workforce and Succession Plan.

Estimated Completion Date: January 31, 2011

OIG Recommendation 5: Develop specific action plans and timelines for regional and local managers to follow in meeting the firefighter position qualification needs identified in Recommendation 4.

FS Response: The FS concurs with this audit recommendation. Currently, each Region utilizes the Workforce Planning and Program Analysis (WfP&PA) tool to address workforce planning. Regional data is included in a standard template and published in Workforce Plans as

required by Human Resources Management (HRM) guidance. As the Regional plans that address all firefighters are finalized, the Regional plans can then be rolled up into the overall National Workforce and Succession Plan that will address all firefighters, including militia. The combined Regional responses will comprise the basis for the national Firefighting Workforce and Succession Plan (ref. response to Recommendation Number 4). Action plans will be prepared by the local units and compiled by each Region identifying how to meet **all** firefighter position needs identified in the National Firefighting Workforce and Succession Plan. The Plan will note specific timelines to meet national objectives.

Estimated Completion Date: January 31, 2011

OIG Recommendation 6: Identify current and anticipated local, regional, and national firefighter needs and develop specific training accomplishment targets to measure progress in meeting them.

FS Response: The FS concurs with this audit recommendation. Specific focus on identifying current and anticipated needs for training all firefightersand developing methods to ensure that training meets those needs will be a part of the national Firefighting Workforce and Succession Plan (WfSSP) that will be developed in response to Recommendation Number 2, and a part of the larger overall Strategic Plan to redesign the agency's firefighting business model that the WfSST will undertake. The responses to Recommendations Numbers 4 and 5 address incorporating local and regional needs which will guide organizational configurations based on program demands.

The FAM Career Assessment Tool (FAMCAT) was developed last fiscal year by the Southern Region and Human Resource Management. FAMCAT is currently operational in the Southern Region. FAMCAT is a long-range planning tool for use by supervisor and employee to identify the preferred career pathway and establish steps in both training and experience required to successfully compete and potentially promote to the identified desired position. The companion piece to the FAMCAT is the "Long-term Individual Development Plan" (LTIDP). The LTIDP is a multi-year expansion of the annual Individual Development Plan (IDP). The LTIDP documents the agreed upon pathway from current position to the next long-term goal via the Training plan between the agency and the employee. This will assist in matching employee skills and development with current and future agency needs for skills and depth.

The LTIDP also formalizes the agreement between the employee and the agency by addressing career pathways, training and experience. This provides for career planning and exemplifies the agency as an "employer of choice" by providing the employee with the prerequisites necessary to compete for agency vacancies. The LTIDP also concurrently provides the agency with a pool of motivated and competitive candidates trained and suited to vacancies necessary to carry out the agency's updated business model as outlined in the strategic plan. The agency will expand these tools' use to other Regions to assist in matching employee skills and development with current and future needs for skills and depth identified by the Strategic Plan, the National Workforce and Succession Plan and HRM analysis of needs. They will be utilized to identify career pathways both for full-time fire management staff, but also for fire "militia" personnel.

Estimated Completion Date: March 31, 2011

OIG Recommendation 7: Require those employees who elect to participate in firefighter training to pursue firefighter qualifications in those positions most needed according to the agency's local, regional, and national goals.

FS Response: The FS generally concurs with this audit recommendation. Agency-wide use of the FAMCAT and LTIDP process for **all** firefighters outlined in response to Recommendation Number 6 will ensure that employees who undertake firefighter training will do so in alignment with the agency's firefighting goals, as outlined in the National Firefighting Workforce and Succession Plan and the Strategic Plan for redesigning the agency's firefighting business practices.

Estimated Completion Date: March 31, 2011

OIG Recommendation 8: Modify current employee training approval procedures to require that fire training officers document their concurrence or non-concurrence with employees' firefighting courses.

FS Response: The FS generally concurs with this audit recommendation. The FS believes this role is more appropriate for an employee's supervisor. Supervisors will document their concurrence or non-concurrence with the employee's training plan as a result of implementation of the FAMCAT and LTIDP processes outlined in Recommendation Number 6.

Estimated Completion Date: March 31, 2011

OIG Recommendation 9: Hold managers accountable for the training accomplishment targets established in Recommendation 6 by incorporating them into their annual performance plans and evaluations.

FS Response: The FS generally concurs with this audit recommendation. . Managers will be heavily involved in ensuring that their employees meet their training needs as identified in their LTIDPs. The WfSST will develop a Strategic Plan for redesigning the agency's current firefighting business practices, as discussed in response to Recommendation Numbers 2 and 6. The Plan will identify the best method to ensure managers are held appropriately accountable for meeting the agency's firefighting training needs. The agency will then take the appropriate actions - as outlined in the Plan - after they are approved by agency leadership.

Estimated Completion Date: March 31, 2011

OIG Recommendation 10: Hold employees accountable for the timely completion of their firefighter training by incorporating assessments of their progress into their individual

development plans and annual evaluations or by creating firefighting training contracts with specific requirements and consequences for no-performance.

FS Response: The FS generally concurs with this audit recommendation. Employee accountability will be accomplished through the development and use of the LTIDP process outlined in Recommendation Number 6. Copies of these LTIDPs will be held in each region at one central location so they can be assessed and reported on to ensure accountability for training completion.

Estimated Completion Date: March 31, 2011

OIG Recommendation 11: To encourage employees to obtain certifications in those firefighter positions where they are most needed, create incentives, such as cash awards and formal recognition for those employees who complete their certifications.

FS Response: The FS generally agrees with this recommendation. The WfSST will investigate options for incentives and evaluate which ones will be most effective, based in part on work done in the *Southern Region Workforce and Succession Plan.* Development and implementation of these incentives will occur in coordination with Office of Personnel Management, Human Resources Management, and Union input, assistance and/or agreement as necessary.

Estimated Completion Date: March 31, 2011

OIG Recommendation 12: Increase the role of training officers to be responsible for (a) collaborating with managers and training personnel to maintain efficiency and effectiveness, (b) conducting outreach to engage employees in fire training, (c) ensuring trainees' timely progress to qualify for positions that meet FS' needs, and (d) facilitating timely trainee deployment to support the qualification process.

FS Response: The FS generally concurs with this audit recommendation. A key responsibility of the WfSST will be to further explore training and outreach options and address these issues as part of the strategy and plan for increasing employee participation in fire. The FS believes some of these responsibilities are more appropriate for an employee's supervisor. Implementation of the FAMCAT and LTIDP process as outlined in Recommendation Number 6 will ensure that managers and employees are working together closely to ensure that employees are effectively and efficiently obtaining training and deploying in accordance with the agency's needs.

Estimated Completion Date: March 31, 2011

OIG Recommendation 13: Identify optimal participation numbers and require qualified firefighters and trainees to be available for local, regional, and national fire assignments according to FS' needs.

FS Response: The FS generally concurs with this audit recommendation and agrees that the agency's firefighting ability has been challenged by lack of participation. The agency will continue to develop and take additional steps to address this challenge. The WfSST will develop a Strategic Plan for redesigning the agency's current firefighting business model, as discussed in response to Recommendation Numbers 2 and 6. That plan will identify appropriate participation numbers and outline actions necessary to ensure that participation is incentivized to align with the agency's redesigned firefighting business model. The agency will then take the appropriate actions - as outlined in the Plan - after they are approved by agency leadership.

Estimated Completion Date: March 31, 2011

OIG Recommendation 14: Direct managers to adjust employee work targets while away on firefighting duty or provide temporary replacement staff.

FS Response: The FS generally agrees with the third Finding that the agency's firefighting ability has been challenged by lack of participation and that taking steps to address that challenge is important. The WfSST will develop a Strategic Plan for redesigning the agency's current firefighting business practices, as discussed in response to Recommendation Number 2. That plan will identify actions necessary to ensure that participation is incentivized and programs of work are adjusted to align with the agency's redesigned firefighting business model. The agency will then take the appropriate actions - as outlined in the Plan - after they are approved by agency leadership.

Estimated Completion Date: March 31, 2011

OIG Recommendation 15: Establish and monitor annual firefighter participation targets based on the agency's local, regional, and national wildland firefighter needs.

FS Response: The FS generally agrees with the Finding that the agency's firefighting ability has been challenged by lack of participation and that taking steps to address that challenge is important. The WfSST will develop a Strategic Plan for redesigning the agency's current firefighting business practices, as discussed in response to Recommendation Numbers 2 and 6. That plan will identify appropriate participation numbers and outline actions necessary to ensure that participation is incentivized to align with the agency's redesigned firefighting business model. The agency will then take the appropriate actions - as outlined in the Plan - after they are approved by agency leadership.

Estimated Completion Date: March 31, 2011

OIG Recommendation 16: Modify managers' annual performance plans and evaluations to include their responsibility for meeting agency firefighting participation targets.

FS Response: The FS generally agrees with the third Finding that the agency's firefighting ability has been challenged by lack of participation and that taking steps to address that

challenge is important. The WfSST will develop a Strategic Plan for redesigning the agency's current firefighting business practices, as discussed in response to Recommendation Numbers 2 and 6. That plan will identify actions to ensure that managers encourage firefighting participation in alignment with the agency's redesigned firefighting business model. The agency will then take the appropriate actions - as outlined in the Plan - after they are approved by agency leadership.

Estimated Completion Date: March 31, 2011

OIG Recommendation 17: Evaluate whether incentives such as increased pay for performance would significantly increase employee participation. If so, determine the cost benefit of implementing such a change.

FS Response: The FS generally agrees with this audit recommendation. The WfSST will evaluate whether incentives would increase employee participation and if so, determine the cost-benefit of implementing them. The WfSST will begin with the work done in the *Southern Region Workforce and Succession Plan.* Development and implementation of these incentives will occur in coordination with Office Personnel Management, Human Resources Management, and Union input, assistance and/or, agreement as necessary.

Estimated Completion Date: March 31, 2011

OIG Recommendation 18: Identify and remove other obstacles preventing firefighting participation and implement other incentives that would increase fighter participation.

FS Response: The FS generally agrees with this recommendation. The WfSST will identify other obstacles preventing firefighting participation and determine whether incentives could be implemented that would increase participation. The WfSST will begin with the work done in the *Southern Region Workforce and Succession Plan.* Development and implementation of these incentives will occur in coordination with Office Personnel Management, Human Resources Management, and Union input, assistance and/or, agreement as necessary. The WfSST will document the results of its analysis and present its findings/ recommendations to the FS executive leadership.

Estimated Completion Date: March 31, 2011

OIG Recommendation 19: Immediately discontinue the use of the GS-401 job series for the six IFPM and four FS-FPM fire management positions.

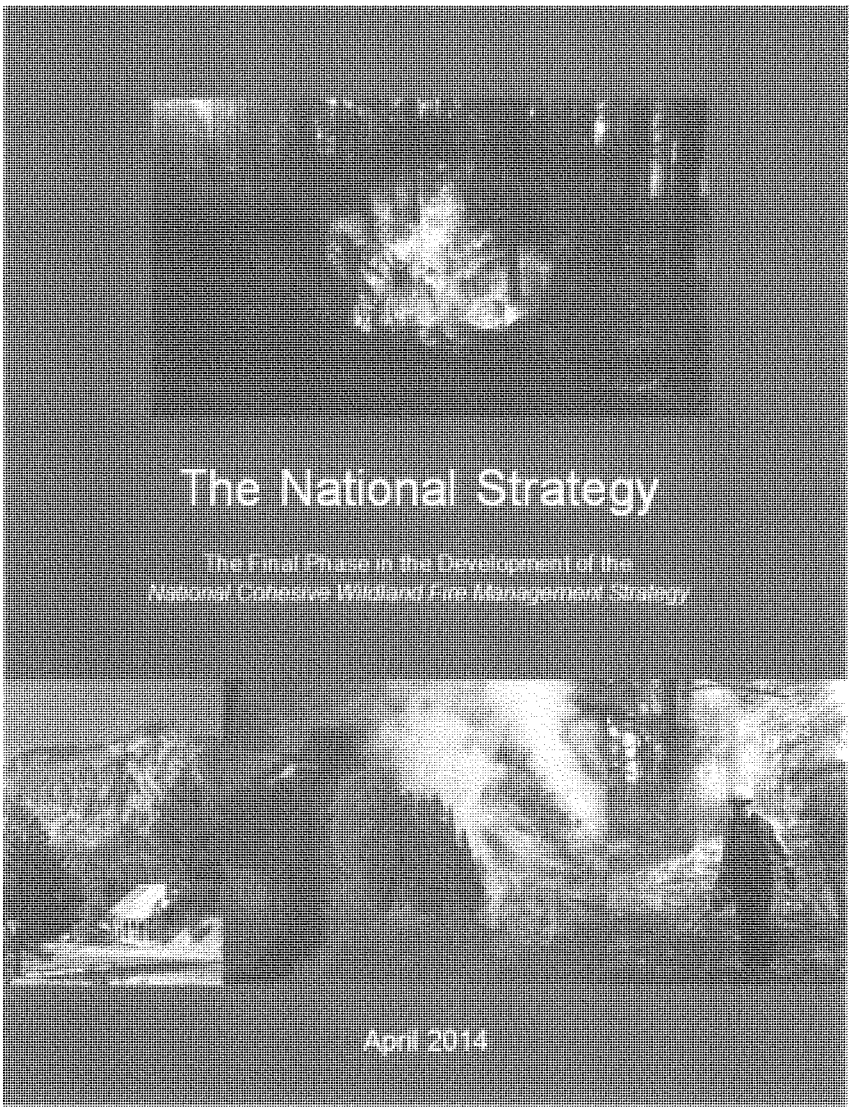
FS Response: TBD

Estimated Completion Date: TBD

OIG Recommendation 20: Coordinate with OPM to develop an alternative to classifying the IFPM and FS-FPM fire management positions under the GS-401 job series, such as creating a new wildland firefighter series, or classifying staff under existing series with more appropriate experience and training requirements.

FS Response: FS will continue to coordinate with OPM and the Department of the Interior to explore alternatives to classifying these fire management positions under the GS-401 job series, including creating a new wildland firefighter series or classifying staff under an existing series.

Estimated Completion Date: March 31, 2011


The National Strategy
The Final Phase in the Development of the
National Cohesive Wildland Fire Management Strategy
April 2014

Title V, section 503, of the 2010 Department of the Interior, Environment and Related Agencies Appropriations Act, cited as the, "Federal Land Assistance, Management, and Enhancement Act of 2009" (FLAME Act of 2009), directed the Secretary of the Interior and the Secretary of Agriculture, acting jointly, to submit to Congress a report that contains a cohesive wildfire management strategy, consistent with the recommendations described in reports of the Government Accountability Office regarding management strategies. The U.S. Departments of the Interior and Agriculture embraced the concept of a cohesive wildland fire management strategy as directed in the FLAME Act; and as members of the intergovernmental Wildland Fire Leadership Council (WFLC), committed to a three-phased planning and analysis effort to thoroughly examine and address the complexities of today's wildland fire management issues.

The National Strategy: The Final Phase of the Development of the National Cohesive Wildland Fire Management Strategy (*The National Strategy*) represents the culmination of a collaborative effort by Federal, state, local, and tribal governments, non-governmental partners, and public stakeholders. *The National Strategy* provides the strategic direction necessary to achieve the vision for the next century – *To safely and effectively extinguish fire when needed; use fire where allowable; manage our natural resources; and, as a Nation, live with wildland fire.*

Sally Jewell
Secretary of the Interior

Thomas J. Vilsack
Secretary of Agriculture

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EXECUTIVE SUMMARY

In the past two decades, a rapid escalation of extreme wildfire behavior, accompanied by significant increases in risk to responders and citizens, home and property losses, costs, and threats to communities and landscapes have been observed. In the Federal Land Assistance, Management, and Enhancement Act of 2009 (FLAME Act), Congress mandated the development of a national cohesive wildland fire management strategy to comprehensively address wildland fire management across all lands in the United States. Shortly after enactment of the FLAME Act, a three-phased, intergovernmental planning and analysis process involving stakeholders and the public was initiated and is commonly referred to as the Cohesive Strategy effort. The culmination of three-phases of planning and analysis is this National Strategy and a companion National Action Plan. The National Strategy is the result of a collaborative effort by Federal, state, local, and tribal governments and non-governmental partners and public stakeholders, in conjunction with scientific data analysis.

Cohesive Strategy vision for the next century:

To safely and effectively extinguish fire, when needed; use fire where allowable; manage our natural resources; and as a Nation, live with wildland fire.

Achieving the national goals requires that the Nation address the broad challenges of: managing vegetation and fuels; protecting homes, communities, and other values at risk; managing human-caused ignitions; and effectively and efficiently responding to wildfire. The National Strategy describes how the Nation can focus future efforts in making strategic investments to reduce the severe effects of wildfire on areas of high risk. Multiple opportunities are available to meet today's wildland fire challenges. No one-size-fits-all approach exists to address the challenges facing the Nation. Adopting any option involves spatial and temporal tradeoffs. Reducing long-term risk requires prioritization of investment and use of resources, acceptance of increased short-term risk, and greater collective investment. Management options allow policy and decision-makers to understand where each option is more likely to reduce risk. The National Strategy is not prescriptive in deciding which options to apply locally or regionally.

The National Strategy includes a set of guidelines intended to provide basic direction when planning activities. Broadly defined to address national challenges, these guidelines can be tailored to meet local and regional needs. Meeting the challenges requires priorities. Safe and effective response to wildfires is the highest priority of the National Strategy, and includes enhancing wildfire response preparedness with an emphasis on both structural protection and wildfire prevention to maximize the effectiveness of initial response. The second priority is vegetation and fuels management, and is perhaps the most challenging issue. General guidance in this area includes designing and prioritizing fuel treatments; strategically placing fuel treatments; increasing use of wildland fire for meeting resource objectives; and continuing and expanding the use of all methods to improve the resiliency of our forests and rangelands. The third priority involves engaging homeowners and communities in taking proactive action prior to wildfires. The fourth priority includes emphasizing programs and activities, tailored to meet identified local needs, which seek to prevent human-caused ignitions.

Beyond general guidelines, the National Strategy also prioritizes where activities will be emphasized from a national perspective—based on the premise that planned actions have a greater likelihood of being most effective and efficient in areas where conditions contributing to the issue are most severe. Four national maps provide the prioritized locations across the Nation for each of the national challenges. The maps are centered on geographic areas to be considered for broad-scale fuels management; programs related to homes, communities, and values at risk; actions for managing human-caused ignitions; and areas of focus for effective and efficient wildfire response. The intent of the fourth map is to suggest areas where greater flexibility in the management of large wildfires might be effective.

Cohesive Strategy goals:

- *Restore and maintain landscapes*
- *Fire-adapted communities*
- *Wildfire response*

The National Strategy sets broad, strategic, and national-level direction as a foundation for implementing actions and activities across the Nation. Three components, intended to be conducted concurrently, are necessary for implementing the National Strategy:

- *strategic alignment*, where all parties agree to the same goals, principles, and strategic course of action;
- *collaborative engagement*, which includes governance, shared information and resources, communications, and monitoring and accountability; and
- *programmatic alignment*, where individual agency or organization objectives are explicitly supportive of the national cohesive strategy goals.

The Cohesive Strategy effort, including this National Strategy and the many other milestones achieved over the last 3 years, collectively establishes a national vision for wildland fire management, defines three national goals, describes the wildland fire challenges, identifies opportunities to reduce wildfire risks, and establishes national priorities focused on achieving the national goals. These achievements form the foundation for achieving the vision for the future of wildland fire management. The release of the National Strategy and the companion National Action Plan will complete the effort to develop a Cohesive Strategy as initiated in 2010. The National Strategy—though significant and foundational—represents a new starting point rather than an ending point as implementation toward the vision begins.

Georgia wildfires 2007. Photo credit: National Interagency Fire Center Archive, Bugwood.org

CHAPTER 1 – THE VISION

In 2009, Congress passed the Federal Land Assistance, Management, and Enhancement Act (FLAME Act), which directs the U.S. Department of Agriculture (USDA) and the Department of the Interior (DOI) to develop a national cohesive wildland fire management strategy to comprehensively address wildland fire management across all lands in the United States. Under the direction of the intergovernmental Wildland Fire Leadership Council (WFLC), the National Cohesive Wildland Fire Management Strategy effort (Cohesive Strategy) was initiated in 2010 through a three-phased approach to planning, risk analysis, and collaboration by Federal, state, local and tribal governments and non-governmental partners and public stakeholders. The phased approach allowed systematic and thorough engagement by stakeholders throughout the effort. Each phase included milestones that serve as the building blocks for subsequent steps. This report, ***The National Strategy, The Final Phase in the Development of the National Cohesive Wildland Fire Management Strategy*** (National Strategy), and the companion National Action Plan culminate the third phase of the Cohesive Strategy effort.

The National Strategy recognizes and accepts fire as a natural process necessary for the maintenance of many ecosystems, and strives to reduce conflicts between fire-prone landscapes and people. By simultaneously considering the role of fire in the landscape, the ability of humans to plan for and adapt to living with fire, and the need to be prepared to respond to fire when it occurs, the Cohesive Strategy takes a holistic approach to the future of wildland fire management.

The Wildland Fire Leadership Council (WFLC) adopted the following vision for the next century:

> *To safely and effectively extinguish fire, when needed; use fire where allowable; manage our natural resources; and as a Nation, live with wildland fire.*

The primary, national goals identified as necessary to achieving the vision are:

> **Restore and maintain landscapes**: Landscapes across all jurisdictions are resilient to fire-related disturbances in accordance with management objectives.
>
> **Fire-adapted communities**: Human populations and infrastructure can withstand a wildfire without loss of life and property.
>
> **Wildfire response**: All jurisdictions participate in making and implementing safe, effective, efficient risk-based wildfire management decisions.

Early in the planning process, stakeholders collaboratively established the following guiding principles and core values for wildland fire management to guide fire and land management activities:

- Reducing risk to firefighters and the public is the first priority in every fire management activity.
- Sound risk management is the foundation for all management activities.
- Actively manage the land to make it more resilient to disturbance, in accordance with management objectives.
- Improve and sustain both community and individual responsibilities to prepare for, respond to, and recover from wildfire through capacity-building activities.
- Rigorous wildfire prevention programs are supported across all jurisdictions.

- Wildland fire, as an essential ecological process and natural change agent, may be incorporated into the planning process and wildfire response.
- Fire management decisions are based on the best available science, knowledge, and experience, and used to evaluate risk versus gain.
- Local, state, tribal, and Federal agencies support one another with wildfire response, including engagement in collaborative planning and the decisionmaking processes that take into account all lands and recognize the interdependence and statutory responsibilities among jurisdictions.
- Where land and resource management objectives differ, prudent and safe actions must be taken through collaborative fire planning and suppression response to keep unwanted wildfires from spreading to adjacent jurisdictions.
- Safe aggressive initial attack is often the best suppression strategy to keep unwanted wildfires small and costs down.
- Fire management programs and activities are economically viable and commensurate with values to be protected, land and resource management objectives, and social and environmental quality considerations.

The challenges for fire management are formidable and growing more complex. Accepting the vision, national goals, guiding principles and core values as the foundation, the National Strategy provides the strategic direction necessary to address the significant, long-standing challenges to managing the ever-growing wildland fire risks facing the Nation. To combat escalating risks posed by wildfire, thorough understanding of resource needs and opportunities by all is required. Additionally, the efficient and effective allocation and use of finite resources is essential. Continued collaboration among stakeholders remains a key to success.

In conjunction with the National Action Plan, the National Strategy culminates the Cohesive Strategy planning phases and more than three years of collaborative effort to improve the Nation's ability to prepare for, respond to, and recover from the inevitable occurrence of wildfire.

The Cohesive Strategy Planning Process

The Cohesive Strategy effort is defined by three phases, with the third and final phase being the completion of this National Strategy and a National Action Plan. Phase I involved establishing the vision statement, national goals, and the guiding principles referenced above. The National Science and Analysis Team (NSAT) also was formed and charged with assembling the scientific information needed to inform deliberations.

A constant theme within the Cohesive Strategy planning efforts is the importance of risk as a central defining issue. As the Phase I report (p. 13) notes,

> *Risk is an inescapable component of living with wildfire. Whether one uses risk in the conventional sense of "something bad may happen" or a more precise definition such as the expected loss from an uncertain future event(s), the basic elements of uncertainty and loss are there. Following this basic reasoning, one can view the Cohesive Strategy as a classic problem of risk management. That is, effective management requires understanding the nature of wildfire and its contributing factors, recognizing the consequences—good and bad—of fire, addressing uncertainty, and crafting plans that reduce the chances of catastrophic losses. Real-*

world constraints on funding, available resources, and administrative flexibility further require consideration of economic efficiency and practicality.

Phase I participants adopted comparative risk assessment as a framework for subsequent planning efforts.

In Phase II, the focus shifted to understanding regional and local wildland fire management challenges and opportunities. Three Regional Strategy Committees (RSC) were created: Northeast, Southeast, and West. Each comprises a diverse group of stakeholders including wildland fire management agencies and organizations, land managers, and policy-making officials representing multiple levels of government, and interests from non-governmental organizations. The RSCs were tasked with clarifying regional goals and objectives and identifying regional challenges and opportunities for improved land and fire management. The regional planning and analysis products completed in Phase II formed the basis for the regional risk analyses and action plans developed in Phase III.

Phase III was undertaken in stages. The first stage involved descriptive analyses of regional issues contributing to risk. The NSAT worked with the regions individually to bring together data describing the wildland fire situation in each region. This information was used by the regions to develop Regional Risk Analysis Reports that characterize each region and outline regional recommendations for achieving the three Cohesive Strategy goals. This work was further refined in Regional Action Plans, which describe actions and tasks to implement the recommendations.

The second stage of Phase III involved the development of the National Strategy through a science-based, intergovernmental planning and analysis process. The analytical basis for the National Strategy comes from information originally assembled and used within the regional analyses, which has been reanalyzed from a national perspective along with supplemental national information. The results of Phase III include the National Strategy and a companion National Action Plan, which provides a framework for implementation of the National Strategy. This concludes the three-phased Cohesive Strategy planning effort and begins implementation activities.

Building the National Strategy

The National Strategy is designed to find a balance encapsulated in the vision, identify strategic opportunities that respond to national challenges, and establish national priorities for achieving the national vision and goals of the Cohesive Strategy. Its development builds on each preceding phase of the Cohesive Strategy effort and continues the emphasis on stakeholder engagement.

Specifically, the vision, national goals, and national and regional challenges formed the foundation for the approach to developing the National Strategy. The relationship between the vision, national goals, and national challenges is illustrated in figure 1.1.

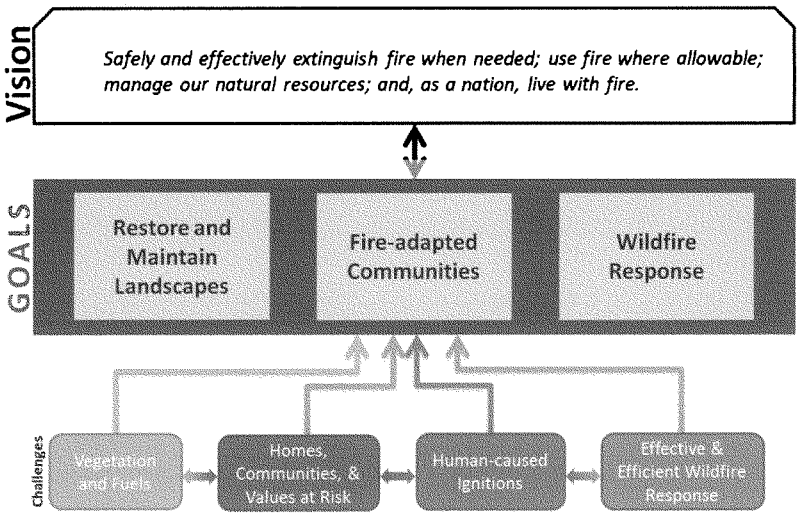


Figure 1.1. Vision, national goals, and national challenges

The development of the National Strategy was supported by a structured scientific analysis[1]. The analysis processed over 100 different data sources to thoroughly examine wildland fire issues across the Nation and understand the differences and similarities among locations. This analysis allowed insights and recommendations coming forward from the regional analyses to be recast from a national perspective. The net result is greater consistency and specificity in understanding national challenges, their underlying causes, and the management opportunities available to address them. Thus, the National Strategy explicitly links potential actions or opportunities to locations—a key element not found in prior milestones from the Cohesive Strategy effort.

The iterative and collaborative process used to develop the National Strategy is generalized through the following eight steps:

1. **Reaffirm the Vision and National Goals**
   The vision and national goals were established in Phase I. The National Strategy identifies opportunities and priority actions that collectively advance the goals.

2. **Understand National and Regional Conditions and Context**
   Considerable variation exists across the Nation in terms of the ecological and socioeconomic conditions that interact and influence wildland fire. Understanding both differences and similarities is essential to crafting a national strategy that can address the breadth of issues facing the Nation.

[1] The Cohesive Strategy data and tools library includes a number of resources based on the analysis completed as well as the published science report, *Wildland Fire in America: The Scientific Basis for the National Cohesive Wildland Fire Strategy* (refer to http://www.forestsandrangelands.gov/strategy/thestrategy.shtml).

3. **Understand National Challenges**
   Many different issues and challenges were identified through various forums. Most can be categorized and understood within a smaller set of four general classes: vegetation and fuels; homes, communities, and other values at risk; human-caused ignitions; and effective and efficient wildfire response.

4. **Identify and Analyze National Opportunities**
   Opportunities for affecting risk vary considerably across the Nation, depending on local conditions and the character or magnitude of multiple factors. Each national challenge presents its own special opportunities, which are revealed through formal analysis.

5. **Prioritization of Opportunities**
   Prioritization involves looking at potential actions thematically and in a broader context. The concept of a national priority for thematic actions follows the premise that concerted actions are most likely to be efficient or effective in areas where conditions contributing to an issue are most acute.

6. **Understand Implications and Tradeoffs**
   Hard choices have to be made in deciding how to allocate available resources. Investments made in one location or program area may preclude investments in other areas, signifying distributional tradeoffs. Similarly, choices made today may limit choices that can be made in the future, requiring temporal tradeoffs.

7. **Define the National Strategy**
   The National Strategy consists of two primary elements: general guidelines for choosing among and implementing management options, and four national priority maps that illustrate national priorities and suggest areas of greatest need or opportunity.

8. **Implementation**
   The National Strategy informs subsequent implementation actions and activities at all scales. Implementation is a necessary commitment if the goals and vision for the future of wildland fire management are to be realized.

Chapter 1 Summary

The National Strategy sets broad, strategic, and national-level direction as a foundation for implementing actions and activities across the Nation. The National Strategy is informed by regional and national analyses, including in-depth risk-based analysis of wildland fire issues and the interrelationships among biophysical and socio-economic drivers. Intergovernmental governance groups and public forums used structured analytical processes to explore and evaluate management options, to determine risk reduction opportunities, and ultimately, to inform the direction in this National Strategy.

CHAPTER 2 – NATIONAL AND REGIONAL CHARACTERIZATION

The United States is vast and beautiful, with diverse, sweeping landscapes and abundant local cultures, customs, and traditions. If you were to pick any 10 counties at random and ask residents to describe their local environments and communities, their answers would undoubtedly contain a rich tapestry of descriptions. It is then possible to analyze those descriptions by parsing them into elements that differ and those that are similar. Characteristics that differ among locations could be counted as contributing to overall diversity. In contrast, similar elements could be counted as contributing to a shared national identity. Both similarities and differences are essential to comprehensively describe the national character.

This same story holds true with respect to wildland fire. Ask fire management specialists from different locations to describe their circumstances and it is quickly evident that there are both unique differences and shared concerns. Both the differences and similarities are essential elements of the national picture of wildland fire, and they must be thoroughly understood and addressed to have a truly comprehensive and cohesive national strategy.

Recognizing similarities and differences is not enough, however, if the intent is to effect change by judiciously applying management resources and effort. Understanding the underlying relationships among biophysical landscapes, the people that live there, and wildland fire is also essential. Characterizing and mapping conditions across the Nation—and recognizing the relationships in play—helps establish a context for determining where strategic opportunities lie, as well as where barriers to implementation exist.

Regional Characterization

In Phase III, the three RSCs worked with practitioners and the National Science and Analysis Team (NSAT) to describe the wildfire situation in each region using biophysical and socioeconomic data. This chapter begins with a brief synopsis of the regional understanding of wildland fire in each of the three regions

Northeast Regional Context

Diverse ecosystems comprise the Northeast Region. From prairie to pine, hardwoods to boreal forests, and coastal wetlands to mountains, the region displays the full range of fire regimes. Some of the most critically endangered ecosystems include grasslands, savannas, and pine barrens. The vast majority of land is in private ownership. Land uses and ownership patterns are complex, with many small holdings, and a diverse range of owner objectives. Public lands are often isolated among other land uses, including private and industrial forests and agricultural lands. Many public lands are managed for multiple uses.

The Northeast can be described in risk management terms as having a large number of small, mostly human-caused, wildfires with a low occurrence of large wildfires. But fires present a high risk to life and property when they do occur. The larger fires tend to occur in areas containing more contiguous and

undeveloped forested tracts of land. Many wildland fires can be fast moving, but they are often contained within a single day. Most wildfires are human-caused; accidental fires and arson are the primary causes of fires in the region. During the 5-year period from 2008 through 2012, the Northeast averaged 21,083 reported wildfires per year, which burned an average of 135,591 acres each year (National Interagency Coordination Center 2013).

Natural events increase the risk of wildfire. Wind, ice, disease, and insects can create large areas of downed timber and increased fuels, leading to exacerbated wildfire conditions. All ecosystems can experience short- and long-term wildfire hazards if these event fuels remain in place. Removal of event fuels before a wildfire is crucial as population continues to grow in forested areas, with homes and infrastructure near wildland fuels. These event fuels may also represent an economic opportunity to supply forest product needs, ranging from biomass to higher valued products.

Downed timber after the 1999 blowdown in the Boundary Waters Canoe Area Wilderness. This area burned in the Ham Lake Fire of May 2007. Photo credit: Eli Sagor, University of Minnesota, Bugwood.org.

Wildland fire management responsibilities are characterized by a patchwork of jurisdictions and ownership, and often more than one agency may be involved in managing wildland fire incidents. Firefighter and public safety is of utmost concern at every level. Wildland fire management is the result of collaboration, partnerships, and cooperation among states (interstate forest fire compacts), Federal fire management agencies (e.g., U.S. Forest Service (USFS), Bureau of Indian Affairs (BIA), National Park Service (NPS), U.S. Fish and Wildlife Service (USFWS), tribal governments, and many local fire departments). Federal agencies are responsible for fire management activities on Federal lands. State and local fire protection agencies are responsible for protection of non-Federal lands. As landowners, Federal agencies have flexibility to address land management considerations in their fire management activities. However, state and local statutes and regulations generally mandate suppression of all wildfires. Maintaining, improving the efficiency and effectiveness, or in some cases, increasing the capacity of local fire departments to respond to wildfires is vital to augment state, Federal, and tribal response needs. Most of the fire community is also vital to all hazard response in the Northeast. Effective integration of wildfire response training into all-hazard response training is critical to maintain local response capability in the Northeast.

A high percentage of wildfires in the region involve homes and infrastructure. With the heavy population and large proportion of landscape in the wildland-urban interface (WUI) intermix, even small wildfires threaten structures, increasing the risk and complexity for firefighters. A proactive, collaborative approach to identifying risks in the WUI, combined with developing Community Wildfire Protection Plans (CWPPs), reducing hazardous fuels, treating event fuels, and educating the public in the context of managing fuels across a multi-jurisdictional, fragmented landscape will prepare communities for wildfire. Wildland fire managers in the Northeast believe that focusing on preventing unwanted fires and increasing homeowner-shared responsibility will reduce firefighter risk and decrease the need for firefighting responses.

Southeast Regional Context

Thirteen states comprise the Southeast Region, stretching from the Atlantic seaboard west through Texas, including Puerto Rico and the U.S. Virgin Islands, with nearly 90 percent of the land base privately held. The Southeast has many diverse fire-dependent ecosystems including but not limited to: the Florida Everglades, coastal pine forests, Appalachian montane forests, and the grasslands of Texas. The Southeast wildfire problem is characterized by a year-round fire season, highly fragmented land ownership, an expansive WUI throughout much of the South and high population growth in WUI areas, high fuel loading, and a high number of unplanned ignitions. The majority of unplanned ignitions in the Southeast are human-caused. For the 5-year period from 2008 through 2012, the Southeast averaged 38,582 wildfires each year, burning an average of 1,733,496 acres per year (National Interagency Coordination Center, 2013).

Wildland fire is a key process in southern ecosystems to maintain resiliency, ecosystem health, wildlife habitat, and ecosystem services, such as timber products and stable carbon storage. With the long growing season, Southeast forest ecosystems have a frequent fire return interval. Prescribed burning is a common practice to prevent the buildup of excessive fuel loads and manage for other benefits, such as wildlife habitat. In the past, the southeastern fire and land management community has relied on cultural and historical acceptance of land management activities, including prescribed fire, to implement appropriate management activities. New residents, however, are often unfamiliar with the use of fire as a valuable management tool. This population and an accompanying significant urbanized demographic shift, along with other factors, are creating new challenges for the fire management community.

The Southeast is experiencing rapid urbanization, leading to the development of many dense human communities located in landscapes that require frequent burning for hazardous fuel reduction and ecosystem maintenance. As the extent of the WUI increases, so does the potential for impacts from prescribed burning and wildfires. The mosaic of urban and wildlands compounds issues related to smoke, emissions release, liability, and the acceptance of fire by the general public. New residents need to be educated with respect to wildland fire, the use of prescribed burning, and effective land management of their own property to reduce wildland fire risk.

The diverse ecosystems, land management goals, and landscapes across the Southeast mean that a single solution will not work for everyone. Additionally, with nearly 90 percent of southeastern land owned privately, decisions cannot be made at the state or regional level for the vast majority of landholdings. Landscape management requires a focus on collaboration between government and non-government agencies, individuals, and other interests.

Fire Learning Network (FLN) sponsored prescribed fire learning exchange near Victoria, Texas, in 2009. Photo credit: Wendy Fulks, The Nature Conservancy.

Western Regional Context

The Western Region's diverse landscapes stretch from the great plains of Nebraska and Kansas to the Rocky Mountains to the Pacific coast and beyond, from the deserts of Arizona and New Mexico to the arctic tundra of Alaska, and include Hawaii and the Pacific Island territories. A variety of factors challenge wildland fire managers in the West including: steep terrain, access limitations, changing climate conditions, and invasive species. Many parts of the West are experiencing extended drought for more than a decade. Drought is one stressor that leads to increased wildfire threats. A stressed system or forest is more susceptible to infestations of insects, pathogens, and disease, which can kill vegetation. In some areas of the West these stressors have left millions of acres of dead, standing trees. From 2008 through 2012, the West averaged 23,091 reported wildfires each year, burning an annual average of 4,666,030 acres per year (National Interagency Coordination Center 2013).

A century of widespread fire exclusion and changes in active forest management have resulted in a buildup of surface fuels and the overstocking of forests with trees and ladder fuels. Conversely, some non-forested areas have experienced an increase in fire frequency contributing to increases in invasive species, which have further altered fire regimes and led to other ecosystem impacts. Large areas of western grasslands and fire-adapted forests are in need of restoration. The forest and rangeland health problems in the West are widespread and increasing, affecting wildlife habitat, water quality and quantity and long-term soil productivity, while providing conditions for uncharacteristically large, severe, and costly wildfires, with increasing threats to human life and property. Residents suffer from smoke in the air through much of the summer, can contribute to health effects such as emphysema and heart disease. These environmental conditions, along with the effects of an expanding WUI underlie four broad areas of risk: risk to firefighters and civilian safety, ecological risks, social risks, and economic risks.

Large blocks of publicly owned land characterize the West. Public lands comprise more than half the total land area. Fires that start on public lands and move onto private land, threatening communities, are a

major problem in the West. This is compounded by the finite amount of fire protection resources. Vast expanses of the West have less than 1 fire station per 100 square miles. This leads to extended response times in rural areas—areas often characterized by Federal ownership, steep slopes, beetle-killed trees, and poor road access.

Western stakeholders identified protecting the "middle ground," areas between communities and the more distant wildlands, as an important regional value. While the western stakeholders express concern over community protection, the additional desire is to protect the middle ground areas from extreme wildfire events. The West needs large landscape-scale changes in vegetative structure and fuel loadings to significantly alter wildfire behavior, reduce wildfire losses, ensure firefighter and public safety, and improve landscape resiliency. Active management of public and private land holdings is needed, including harvesting and thinning operations to reduce hazardous fuels in and around communities and in the middle ground.

The community on the left was protected from the 2012 Waldo Canyon Fire in Colorado, by the area of reduced fuels in the middle ground–between the subdivision and the wildlands. Photo credit: Kari Greer, National Interagency Fire Center.

Wildland fire managers in the West envision expanding work to speed up the development of fire-adapted communities and to link them into a sub-regional communication and learning network. Fire adaptation is viewed as a continuum, with communities moving toward fire adaptation through concerted collaborative effort including: CWPPs, Firewise™ communities, fuels treatments, the Ready, Set, Go™ program, and many more activities at the community level. Fire adaptation is a continuous process that requires annual renewal of efforts to be prepared and to keep fuels at reduced levels. Communities need technical and financial support to continue to move closer to a fire-adapted status.

National Characterization

The preceding discussion of regional conditions highlights the considerable variation that exists throughout the Nation, as well as many of the shared issues. Indeed, every state, county, management unit, or community can claim its own unique fire regime, history, and special circumstances. Such differences are important when planning at the local level, but may overwhelm a national analysis designed to inform a national strategy that addresses all lands. On the other hand, generalities are useful only to a certain extent; at some point, a location's specifics must be fully considered. One of the challenges of a national analysis is finding an adequate balance between generalization and specification that highlights important differences while also recognizing commonalities.

Data spanning a broad spectrum of environmental, socioeconomic, and fire-related statistics were assembled to support development of the Cohesive Strategy. These data were summarized and consolidated to the county level to provide a comparable unit of analysis across data sets. Where appropriate, they also have been normalized to allow equitable comparisons across counties of different sizes. That is, some variables are expressed on a unit area (e.g., fires per square mile) or per capita basis. This allows data from multiple sources and of various forms to be used to discern relationships among driving factors and influential variables. It also allows creation of national maps that highlight many of the intra- and inter-regional or state similarities and differences.

Because the Cohesive Strategy planning effort relies on existing data sources, limitations inherent in those data naturally constrain the scope and extent of the national analysis. One of the more important limitations is that several of the more influential data sets are restricted to the 48 conterminous states and exclude Alaska, Hawaii, Puerto Rico, and other territories. Thus, the national characterization and subsequent analyses that depend on it are similarly restricted. Options for extending the analysis to the excluded states and territories are being explored.

Even county-level metrics pose challenges to completing a national analysis. There are 3,109 counties in the conterminous United States and each has its own unique story. This analysis is not directed at telling those unique stories, but rather highlights the pattern of similarities and differences found among the counties and uses those common attributes to develop a manageable set of narratives that can be linked to nationwide management options. To that end, grouping counties along two principal themes of landscape character and risk to communities provides a serviceable classification system. Counties are grouped together based upon their similarities with respect to key variables that are relevant to the principal themes. Two different techniques were used to better match the nature of the themes and patterns within the data.

Landscape Classes

The first national goal of the Cohesive Strategy is to restore and maintain resilient landscapes. Landscape resiliency has been defined in various ways, but at its core are sustainability and resistance to and recovery from disturbance. Given that landscapes are complex intersections of natural, built, and human components, simple definitions or measures of landscape resiliency have limited utility. A more useful approach is to recognize that discussions about sustaining values and resiliency are contextual, that is, they vary from location to location and depend upon a host of local considerations, including both ecological and human dimensions.

The classification system designed and used here divides counties into landscape classes where similar conversations about land management objectives and resiliency might occur, using county-level attributes. Counties were assigned to different landscape classes using a classification tree. A classification tree begins with all counties in a single group and then progressively divides them into more similar subgroups based on key variables. Each junction in the classification tree involves a dichotomous division based on a single variable. The classification tree used the relative urban landcover within a county, the modal fire regime,[2] geographical region, area forested, area of public lands, and various measures of fire occurrence to assign counties to one of 11 classes labeled A through K (figure 2.1).

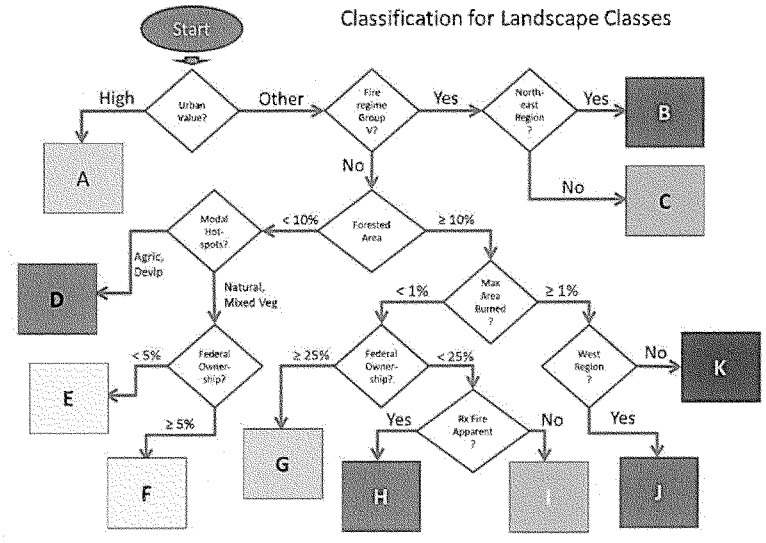


Figure 2.1. Classification tree used to subdivide counties based on variables relevant to the topic of landscape classification

The classes tend to have strong geographical associations due to the influence of regional similarities in landcover and fire regimes (figure 2.2); a notable exception is the urban class (Class A), which follows the national pattern of population density and urban development.

[2] Historical fire regimes refer to the characteristic frequency and severity of wildfires prior to European settlement. Further discussion of fire regime can be found in Chapter 3.

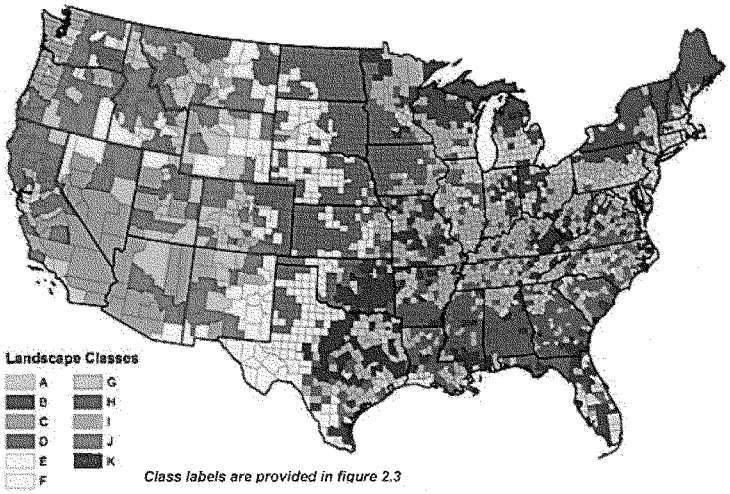
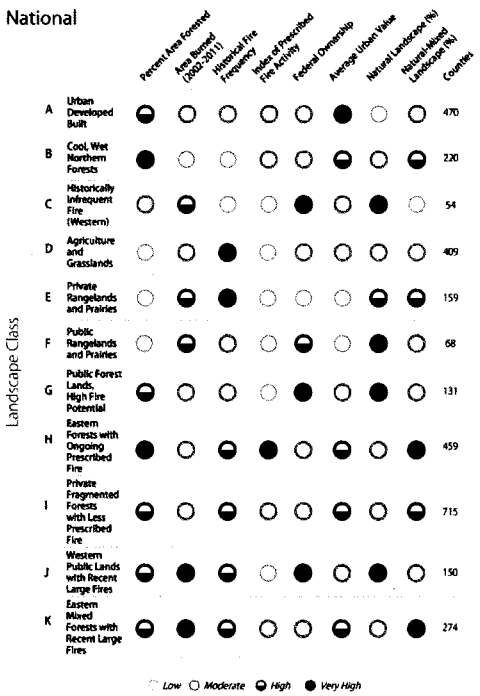


Figure 2.2. Map of the geographical distribution of the 11 landscape classes across the conterminous United States.

The nature of each class is revealed by looking at both the variables used in the classification tree and the broader range of descriptive variables for each county. Figure 2.3 provides an abbreviated label for each class as well as some simple comparison graphics for looking at the distributions of eight selected variables within each class. For example, landscape class D characterizes agricultural and grassland areas that are relatively devoid of forested areas or Federal ownership, historically experienced very high levels of natural fire, and generally fall in the lower half (moderate) of the national range with respect to the four other variables. Using this and other information, one can develop an informative, general narrative that applies to the counties within each class.



Note: ***Scores of low to very high are established relative to the national distribution of values for each variable.***

Figure 2.3. Visual summarization of the characteristic features of 11 landscape classes with respect to eight variables of interest.

Furthermore, the landscape class narratives help point to possible management options or policies that would advance the goal of landscape resiliency within each class, recognizing that each class could connote a unique interpretation of "landscape resiliency" that is specific to the conditions found therein. Thus, landscape classes are used to promote a context-specific discussion of management options that matches actions and activities to landscapes. More complete landscape class narratives and data descriptions are available online through the Cohesive Strategy data and tools library (refer to http://www.forestsandrangelands.gov/strategy/thestrategy.shtml).

***Conclusion**: Counties have been classified using a relatively small set of variables into various "landscape classes" that share common attributes. Examining multiple variables reveals both similarities and differences among counties relative to the theme of landscape resiliency.*

Community Clusters

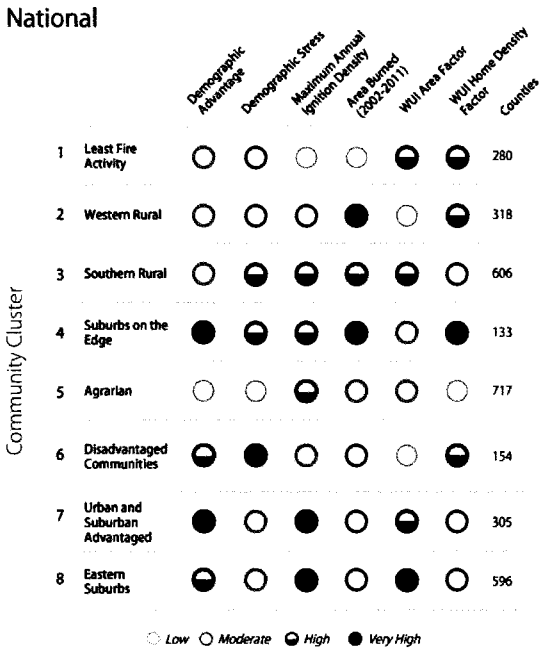
The second national goal of the Cohesive Strategy is promoting fire-adapted communities. The wildfire risk to communities and values can be viewed as the intersection of three principal elements: wildfire occurrence and extent, homes and communities, and social and economic resources. The first simply captures the magnitude of the hazard posed by wildfire. The second and third reflect the principal values at stake. The values threatened include buildings, homes, infrastructure, public and firefighter safety, public health, and many of the benefits that communities derive from the landscapes around them.

Quantifying all of the values that could be threatened by wildfire across the Nation is impractical. The number and distribution of homes located within the WUI is often used as a surrogate for many of the tangible values at risk, a convention followed here. Homes do not capture all of the values that are affected by wildfire, but it also recognized that losing a home is a catastrophic loss for the individual(s) affected. The number of homes lost in a wildfire is often equated by the public with the magnitude of the overall damage, even though other values are clearly impacted.

The capacity of a community to prepare for, respond to, and recover from a wildfire event is also a critical concern. There is an emerging literature on the concept of social vulnerability to catastrophic events. Researchers have generally looked at a combination of demographic and economic information to assess the vulnerability of individuals, families, and communities. Survey data on family incomes, education, and indicators of household stress were used to suggest relative vulnerability, while also considering metrics of economic activity within each county.

A statistical technique known as cluster analysis was used to group counties. Variables reflective of the amount of area in WUI and density of homes within it, demographic measures of household stress and economic advantage, and measures of area burned by wildfires and ignition density were used in the cluster analysis. Cluster analysis was used because it provided a cleaner separation of counties when considering all variables simultaneously, as opposed to sequentially as in a classification tree.

The result of the cluster analysis is a set of eight "community clusters" that are simply numbered 1 to 8 in no particular order. Simple labels were assigned based upon the distribution of key variables within each community cluster (figure 2.4).



Note: *Scores of low to very high are established relative to the national distribution of values for each variable.*

Figure 2.4. Visual summarization of the characteristic features of eight community clusters with respect to six variables of interest.

All community cluster types can be found in each of the three geographic regions, albeit in decidedly different proportions (figure 2.5).

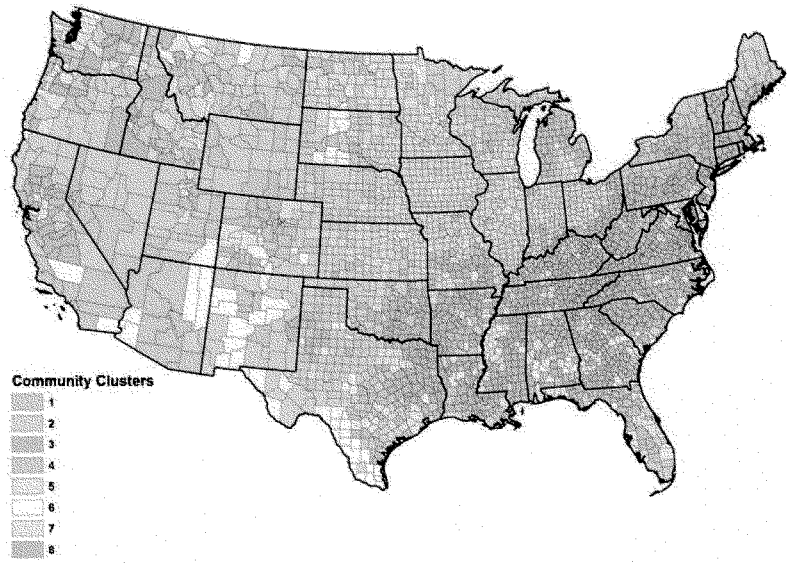


Figure 2.5. Spatial distribution of community clusters

Geographical affinity of several clusters is apparent, but is not as strong as with the resiliency classes. This result highlights the fact that there are counties with similar fire histories, WUI patterns, and socioeconomic attributes scattered throughout the Country. Community clusters were used to develop narratives that in turn are used in the discussion of policy options below, complementing the landscape classes (refer to the online Cohesive Strategy data and tools library for complete description of the community cluster narratives).

***Conclusion**: Counties have been grouped using a relatively small set of variables into various "community clusters" that share common attributes. Examining multiple variables reveals both similarities and differences in community wildfire risk among counties.*

Intersecting Landscape Classes and Community Clusters

The most vexing problems in wildland fire management cannot be solved by looking solely at landscape conditions, nor is a community perspective adequate by itself. A combination of the two sheds light on the most difficult issues. Placing the community clusters in juxtaposition with the landscape classes creates a combination class that provides greater environmental context to the community clusters, while simultaneously enhancing the socioeconomic dimensions of the landscape classes.

The intersection of the community clusters with the landscape resiliency classes and the number of counties in each combination class is shown in

table 2.1. Blank spaces in the table indicate that no counties fell within the intersection. The table indicates the number of counties, not the spatial extent covered by each combination class; differences in county size across the country affect the distribution of area.

Table 2.1.The number of counties within the conterminous 48 states that fall within each combination of community cluster and resiliency class

Landscape Classes	Community Clusters								Grand Total
	1	2	3	4	5	6	7	8	
A	8	3	31	30	71	4	129	194	**470**
B	68	5	6		78	1	6	56	**220**
C	15	5	6	12		9	7		**54**
D	56	38	29	2	265	5	14		**409**
E	22	76	7	3	28	22	1		**159**
F	2	32	6	8	12	7	1		**68**
G	18	24	28	12	4	8	20	17	**131**
H	29	8	189	8	30	54	42	99	**459**
I	62	18	145	7	207	24	60	192	**715**
J		69	24	36	7	4	8		**150**
K		40	135	13	15	16	17	38	**274**
Grand Total	**280**	**318**	**606**	**133**	**717**	**154**	**305**	**596**	**3,109**

Note: Combinations highlighted in green show strong positive association between classes and clusters.

An interesting observation from this table is that almost all of the possible combinations are represented by one or more counties. This spread across combinations reflects the considerable diversity found across the United States. It also highlights the challenges that arise when trying to make generalizations. Fortunately, the total number of combinations (79) is manageable, and there are distinct patterns that suggest common narratives.

Although a landscape class may be distributed across all community clusters (or vice versa), they are not independent. That is, there are distinct patterns of association or spatial correlations between the two such that various combinations occur more frequently than they would by chance alone, while others occur less frequently. Combinations where the observed frequency is twice or more the expected frequency are highlighted in green in

table 2.1. For example, landscape class A, which represents a landscape dominated by human development, is strongly associated with community clusters 7 and 8, which are primarily urban and suburban communities, respectively. Similarly, landscape class D has a strong association with community cluster 5, both of which are often associated with counties dominated by agricultural development. The association between classes and clusters reflects both the human footprint on landscapes, and conversely how biophysical landscapes have influenced human development. Many of the unique attributes of each combination are described in online references (see Appendix C).

It is reasonable to ask whether the combination of landscape and communities is sufficient to cover all the complexities and issues that are involved in wildland fire. For example, can we distinguish between areas with different levels of response capacity, the complexities of mixed land ownership, and overlapping jurisdictional responsibilities? Many of these issues were examined, and consideration was given to whether an additional classification system(s) might be necessary. In general, the two-dimensional system proved adequate for addressing the issues at hand. Those few issues that exhibit geographical patterns that cannot be explained with the combination classes can be examined using other means.

***Conclusion**: The combination of landscape resiliency classes and community clusters provides a powerful mechanism to discern and relate both the environmental and socioeconomic dimensions of the landscape simultaneously.*

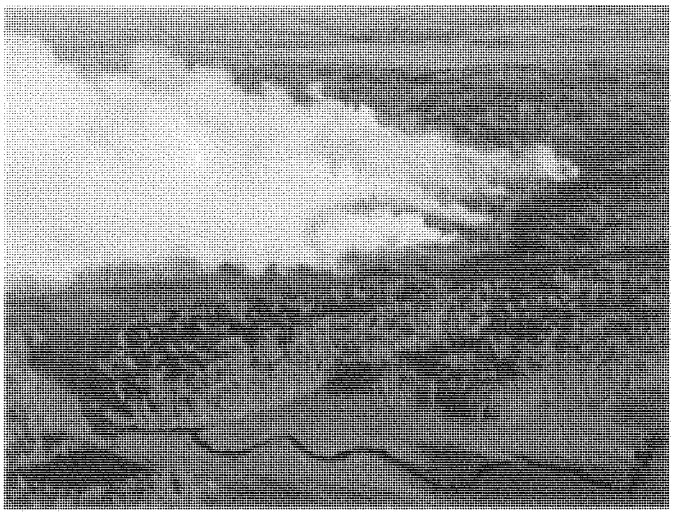
Chapter 2 Summary

Wildland fire in the United States involves multiple, complex issues that exhibit considerable variation across the country, as well as remarkable similarities. Understanding both the differences and similarities is necessary to develop a cohesive national strategy. Previous efforts within the Cohesive Strategy have documented many of the issues from a regional perspective, which allows interregional comparisons, but falls short of providing a national perspective needed to develop a national strategy.

Comprehensive data sets from multiple sources were combined through a rigorous analytical classification process to group counties along two central themes: landscape features and community risk. This combination classification system provides a useful mechanism for developing common narratives for subsets of counties, irrespective of regional boundaries. These common narratives facilitate development of national management direction that recognizes and is tailored to more specific local conditions. The combination of landscape classes and community clusters is used to explore management opportunities and suggest national priorities, as described in following chapters.

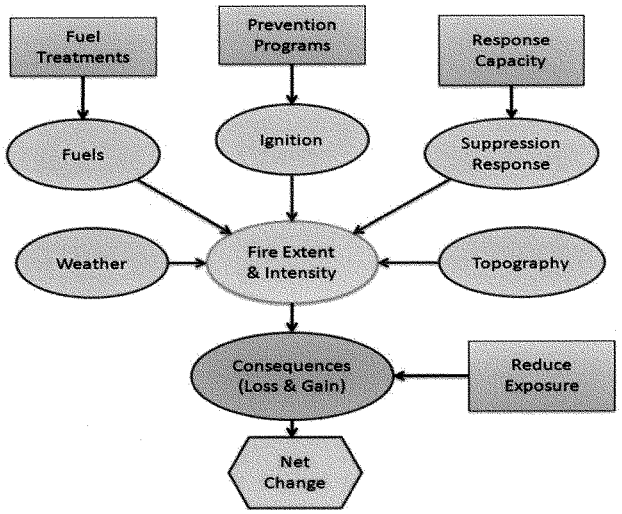
CHAPTER 3 – NATIONAL CHALLENGES AND OPPORTUNITIES

Wildland fire encompasses numerous interacting and complex social, ecological, and physical factors. Throughout each phase of the Cohesive Strategy effort, simple conceptual models have been used to illustrate how management actions interact with the physical and human-built environment, events, and processes to influence the risk associated with wildland fire. For example, consider the hypothetical case of a single wildfire. Whether a wildfire ignites and how extensively and intensively it burns depends on the interactions of five factors: a source of ignition, available fuels, topography, weather, and suppression response. By itself, the wildfire is simply an event. It can be described by its location, intensity, duration, extent, or other characteristics, but it has no normative value—it is neither good nor bad. However, the consequences, both negative and positive, matter. For example, wildfire is considered to be 'bad' or even catastrophic, whenever homes and other structures are involved; economically valuable timber is lost; critical wildlife habitat is degraded; or other values are lost depending on the location, extent, and intensity of the wildfire. In contrast, wildfire can also be 'good' and have positive effects, particularly environmental, such as creating an environment for fire-dependent or fire-tolerant plant and animal species to flourish; burning plant litter to limit the intensity of future wildfires; or destroying harmful pathogens. Many plant and animal communities have come to depend on wildfire of many different intensities to renew and reinvigorate them, processes that have been interrupted for a century or more following the onset of organized wildfire suppression.



Pagami Creek Fire in Minnesota, 2011. The fire spread from the Boundary Waters Canoe Area Wilderness and grew to over 92,000 acres. Photo credit: Kari Greer.

The conceptual model is completed by adding consequences (value changes) and management options available that might directly affect factors contributing to risk (figure 3.1). For example, a fire prevention program could lessen the probability of human-caused ignitions. Similarly, a fuels treatment program might change fire behavior and make it less damaging or easier to suppress. A third option might be to consider adding firefighting capacity to the local community or management unit so that wildfires are contained before they grow large and damaging. Finally, the likelihood of a wildfire damaging homes or other structures can be reduced by treating the immediate area around the home or near other highly valued resources.



Note: ***Model includes five principal contributing factors (blue circles), consequences, and four management options (grey boxes) designed to either change wildfire extent and intensity, or to alter risk by changing the degree of exposure experienced by valued elements of the landscape.***

Figure 3.1. A simple conceptual model of wildfire

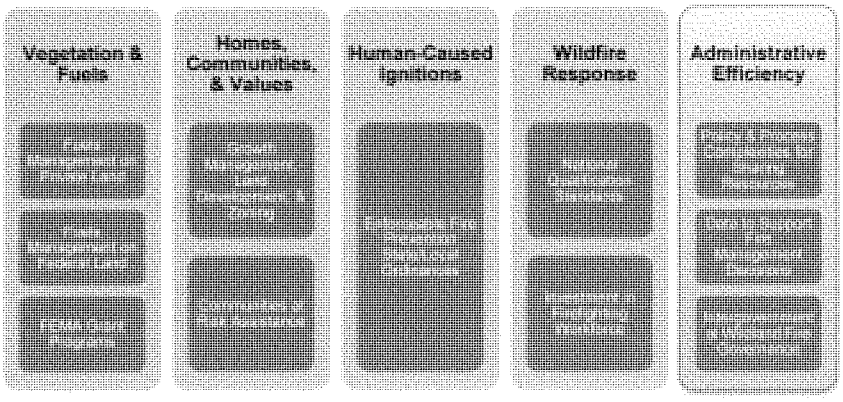
The conceptual model of a single wildfire can also be viewed as a caricature of larger wildland fire challenges. Nationally, five basic factors determine when, where, and how intensely wildfires burn: climate, topography, vegetation, ignitions, and suppression. Of these, two are realistically beyond the influence of wildland fire managers—climate and topography—but cannot be ignored. Management directly influences the remaining three, but they rarely are as straightforward as the conceptual model might suggest. Similarly, mitigating consequences by reducing exposure is often difficult in practice. Understanding the national implications of various policies and actions requires more sophisticated and nuanced exploration of key pathways by which actions lead to desired outcomes.

In the following sections, the analysis and discussion is organized around four national challenges that basically follow the key pathways suggested in the conceptual model above. These include:

- Vegetation and Fuels;
- Homes, Communities, and other Values at Risk;
- Human-caused Ignitions; and
- Effective and Efficient Wildfire Response.

The variation across the Nation in landscapes and community structure described in Chapter 2 suggests that no two counties are likely to experience identical challenges or respond the same to management options. For example, some areas will respond positively to fuel treatments, while other areas will be more sensitive to greater emphasis on prevention programs. This implies that there are no one-size-fits-all solutions or prescriptions for reducing overall risk. The same can be said of the challenges, where some issues are more or less important, depending upon the circumstances of each region or county. Most of the potential actions previously identified by the RSCs address these four national challenges. Administrative actions that focus primarily on improving overall efficiency by sharing information, personnel, and resources form a fifth class of overarching challenges affecting wildland fire management. Representatives of the three RSCs also identified specific national priority barriers and critical success factors for improved landscape resiliency, fire-adapted communities, and improved fire response. These barriers or critical success factors align with five general classes of national challenges (table 3.1), consistent with the simple conceptual model (refer to Appendix C for additional detail on the barriers and success factors).

Table 3.1. High-priority barriers and critical success factors



Understanding how investment choices might play out differently across the Nation is critical to being able to plan an efficient and effective national strategy. In the following sections, each of the four national challenges are examined. In this analysis, the focus is shifted from what the Nation wants to achieve—national goals—to what challenges must be overcome and actions taken toward those goals.

The analysis seeks to answer three principal questions: (1) Why is this a national issue or challenge? (2) How does the issue vary across the Nation? (3) Where are the greatest opportunities for positively addressing these challenges and mitigating risks?

The remainder of this chapter focuses on answering these questions. First, each national challenge is described individually and from an analytical standpoint. Next, opportunities are described through a series of associated management options (refer to Table 3.3 for a complete description of all management options presented). A map for each management option displays the spatial distribution of opportunities nationally as well as a brief conclusion related to the management option. Lastly, a summary of all four thematic challenges and opportunities is presented. The options and opportunities inform national and spatially explicit priorities described in Chapter 4, The National Strategy. Options and opportunities presented herein are additional useful information to inform land use plans, policies, ordinances, and other applicable guidance, which govern decisions made at national, regional, state, and local scales.

Vegetation and Fuels

Wildland fire from both natural and human causes has played a prominent role in shaping the landscapes of North America for millennia. There is an extensive collection of literature on the ecological role of fire in North American ecosystems and widespread understanding of the historical role that human settlement patterns have had in changing the frequency, extent, and location of fire. One universally accepted point is that nearly all of the natural vegetation communities across North America historically burned—many quite frequently. The intensity with which they burned was a function of both the biophysical environment (climate, topography, and vegetation) and the frequency of ignition, both natural and human-caused.

In general, more frequent burning is associated with less intense or severe wildfires. Conversely, infrequent burning generally leads to higher severity fires that consume much of the aboveground live and dead vegetation—the principal fuels in a wildfire. This pattern arises naturally from the accumulation of fuels between events, absent of any other disturbance or activity that reduces it. Ecologists use the concept of fire regime and fire regime groups (FRG) to characterize the relationship between fire frequency and fire severity and their ecological implications (table 3.2, from Barrett and others [2013][3]).

Of note is the relatively high frequency of fires in FRGs I and II, which average 35 years or less between fire events and include many of the fire-adapted forest and rangeland types in the United States. Nearly half of the current undeveloped natural vegetation within the conterminous 48 states falls within lands that historically supported FRGs I and II (figure 3.2), totaling about 1.1 million square miles. If we presume that this area previously experienced a fire return interval of 35 years (the upper-bound), then a lower-bound estimate of roughly 31,000 square miles (over 20 million acres) would have burned on average each year within these two FRG areas alone. Such estimates provide a sense of perspective when compared to the annual acres burned in the recent decade, 2002 through 2011. The best estimate of annual area burned in counties dominated by FRGs I and II within the conterminous 48 states is roughly 7,800 square miles, or 1/4 of the historical lower bound for this area. Another way of stating this is that the average time between wildfires has more than quadrupled across a significant portion of our Nation.

[3] Barrett, S.; D. Havlina; J. Jones; W. Hann; C. Frame; D. Hamilton; K. Schon; T. Demeo; L. Hutter; and J. Menakis. 2010. Interagency Fire Regime Condition Class Guidebook. Version 3.0 [Homepage of the Interagency Fire Regime Condition Class website, USDA Forest Service, U.S. Department of the Interior, and The Nature Conservancy]. [Online], Available: http://www.frcc.gov/.

Increasing the time interval between fires means that many fires occurring today are of higher severity than they were historically. Substantive shifts in vegetation away from fire-adapted species are also occurring. Changes in fire return intervals are not limited to just FRGs I and II. A previous analysis suggested increased fire return intervals throughout the United States except for some areas of the Southwest and Great Basin, where invasive grasses have contributed to reduced fire intervals and radically changed vegetative structure and composition. A second significant observation is that many of the large fires that occur today disproportionately occur in areas that historically were FRGs IV and V. These include many areas where the natural fire regime is relatively infrequent, high-severity fires—the most difficult and expensive to control or extinguish.

Table 3.2. Fire regime groups and descriptions

Group	Frequency	Severity	Severity description
I	0 to 35 years	Low / mixed	Generally low-severity fires replacing less than 25 percent of the dominant overstory vegetation; can include mixed-severity fires that replace up to 75 percent of the overstory
II	0 to 35 years	Replacement	High-severity fires replacing greater than 75 percent of the dominant overstory vegetation
III	35 to 200 years	Mixed / low	Generally mixed-severity; can also include low-severity fires
IV	35 to 200 years	Replacement	High-severity fires
V	200+ years	Replacement / any severity	Generally replacement severity; can include any severity type in this frequency range

Source: Barrett and others (2010)

The issue is not as severe in areas under active prescribed fire regimes, including southeastern pine forests and some western forests and grasslands. For example, a recent survey reported 7.9 million acres of prescribed fire activity for silvicultural purposes in 2011, 6.5 million acres of which occurred in the Southeast.[4] There also are areas within larger national parks, scattered wildlife preserves, and designated wilderness areas nationwide where natural fire regimes have been successfully reintroduced and maintained for decades.

Understanding these broad-scale changes in fire regimes is essential to crafting an effective national strategy that includes cost effective and targeted fuels treatments. Fire regimes are intrinsically and fundamentally connected to fuel accumulation, vegetation composition, and subsequent fire behavior when wildfires inevitably occur. More extreme fire conditions can be expected in areas where the time between fires has been extended, unless fuels have been reduced by other means. Human development and suppression can postpone wildfires, but not exclude them, except in unusual circumstances.

[4] Melvin, Mark A. 2012. 2012 National Prescribed Fire Use Survey Report. Technical Report 01-12. Coalition of Prescribed Fire Councils, Inc. 19 p. Available at http://www.prescribedfire.net

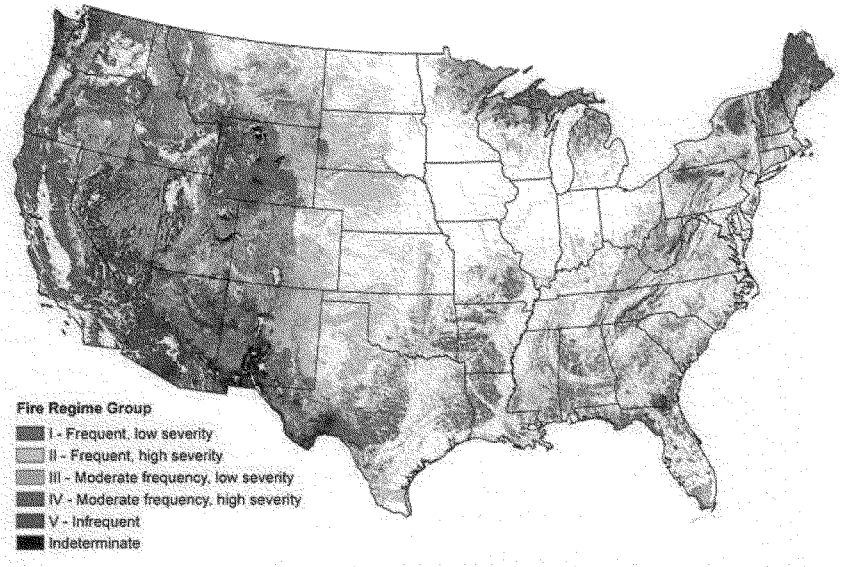


Figure 3.2. Historical fire regime group values in areas currently dominated by natural vegetation

Moreover, the confluence of climate factors and the fuel accumulations that result from sustained, vigorous suppression in some locations make exclusion increasingly difficult. The basic biophysical environment remains conducive to wildfire and is unlikely to change in a way that would mitigate wildfire occurrence.[5] Fuels do not simply disappear in the absence of wildfire in fire-adapted ecosystems. Either they accumulate and wait for the next fire to occur, slowly decompose, or some form of active fuels management such as prescribed fire or mechanical treatment is required. Conversely, in those ecosystems where fires have become more frequent, fuels management may be required to protect remaining unburned areas or to alter species composition or structure.

Historical perspective provides a benchmark for areas where returning natural vegetation to near-historical or desired conditions is a primary objective. However, a fundamental challenge in wildland fire management is that restoring historical conditions is neither practical nor desirable in several locations. The degree to which wildfires or fuels management can be tolerated within a given landscape depends upon community values and land management objectives.

Where fuels cannot be managed to match historical levels, then adjustments must be made within human communities to accommodate a new normal in fire occurrence and extent. For forested systems, this likely means a progressive transition from historical FRG I or III to a new FRG IV and less frequent,

[5] Some northern hardwood forests may be the exception to this general rule. As human burning has decreased, compositional and structural changes within these forests have caused them to become more fire-resistant so they burn less frequently and less intensely.

higher-intensity fires. Higher-intensity fires lead to higher suppression difficulty, increased risks to firefighter and public safety, and more severe social or ecological damage when they occur. Changes in rangeland and shrubland systems also can lead to increased, more continuous fire extent, often with greatly increased rates of spread, which also increase suppression difficulty and risk to firefighters. Additionally, changes in fire frequency can lead to an undesirable mix of new species that move into these systems (e.g., invasive grasses such as cheatgrass or encroachment by woody species such as juniper).

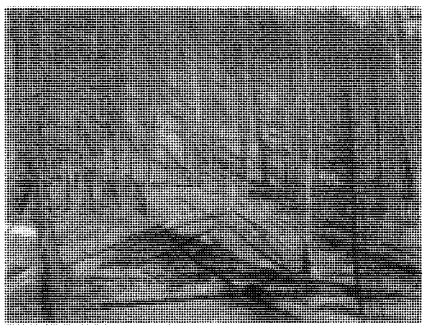
Opportunities Discussion

The primary purpose of hazardous fuels management is to reduce the extent, intensity, and severity of wildfire if and when it encounters a treatment area during the lifespan of the treatments.[6] To be effective, fuel treatments must reduce fireline intensities under the conditions most likely to result in harm. That is, they have to work across a range of weather conditions likely to occur during a wildfire. Depending on the ecosystem, reduced extent, intensity, and severity can have beneficial ecological effects. For example, wildfires burning less intensely may mimic historical fire effects more closely, helping to restore or enhance native, fire-adapted vegetation. In addition, less severe fires damage or kill fewer economically valuable trees and exhibit less soil erosion following fires. Strategically placed fuel treatments can have broader landscape effects that extend beyond the perimeter of the area physically treated, either through affecting fire behavior directly or by facilitating ecologically sensitive containment strategies. Such treatments can affect the spatial distribution of fires, leading to more desirable vegetation composition and structure, which reduces the potential for invasive species and can help preserve structure that is currently limited on the landscape (i.e., sagebrush).

Reduced intensity also means that suppression efforts are more likely to be effective and can be conducted more safely in areas where wildfires are unwanted or threaten communities. Fuel treatments near homes and communities also are an effective, proactive way of reducing the likelihood of structure ignition and enhancing the safety of firefighters and the public.

The three primary means of managing fuels are prescribed fire, managing wildfire for ecological purposes and resource objectives, and non-fire treatments involving mechanical, biological, or chemical methods. Treatments can occur in isolation or in combination, depending on management objectives and resource availability.

[6] Here, vegetation treatments for the primary purpose of reducing hazard are distinguished from treatments that reduce vegetative fuels as a secondary benefit. For example, prescribed fire can be used for the primary benefit of promoting desirable vegetation in areas devoid of significant wildfire hazard (e.g., native rice fields). Many agricultural, silvicultural, and habitat enhancement practices have secondary fuels benefits, but are not conducted for that primary reason.



Untreated forest area after the 2011 Wallow Fire near Alpine, Arizona. Photo credit: Kari Greer.

Treated forest area along the same road near Alpine, Arizona, after the Wallow Fire. Photo credit: Kari Greer.

Management Option: Prescribed Fire

Prescribed fire is one of the more effective and cost-efficient means of managing vegetation for multiple purposes, including hazard reduction, ecosystem restoration or maintenance, silviculture, and others. In general, prescribed fire is an effective tool in areas with fire-adapted or fire-dependent vegetation that has evolved with fire. Prescribed fire is also used to a lesser extent as site preparation in rangelands (i.e., preparation for chemical application for eradicating invasive species) or post-harvest clean-up in forested systems.

Prescribed fire carries inherent risk, as fires can escape the prescribed perimeter or produce hazardous smoke if not managed correctly. Prescribed fire also varies widely in cost because of terrain, weather, and the spatial pattern of fuels, meaning that its application is not always economically feasible. Implementing and maintaining a prescribed fire regime, therefore, requires properly trained personnel, adequate resources, and the willingness on the part of the landowners and nearby communities to accept the costs and potential disadvantages of prescribed fire in exchange for the potential benefits.

Broad areas of the country have the potential for prescribed fire use based on their natural fire regime, vegetation, and level of human development. National maps of potential for prescribed fire use were developed in both forested and non-forested systems based on vegetation, historical fire regime, and land cover. These maps provide a baseline from which further opportunities for use were explored. Emphasis is on broad-scale application of prescribed fire, focusing on counties where a significant portion of each county has the potential for prescribed fire use. Specific local concerns such as smoke management, cost, or environmental issues that might limit or constrain prescribed fire use were not considered. Conversely, local issues that might call for prescribed fire use on a more limited basis were not analyzed.

Prescribed fire use in longleaf pine forest to reduce fuels in South Carolina. Photo credit USDA Forest Service Southern Research Station Archive.

One management opportunity for prescribed fire use is to maintain or expand its application in areas where it currently is used (Prescribed Fire A, figure 3.3). Fire management specialists in these areas have the necessary training and experience to implement a prescribed fire program and the history of use suggests community acceptance and tolerance. The analysis of probable areas of prescribed fire use based on remotely sensed data and other reports indicate that many counties throughout the Southeast and scattered counties in the Northeast and West are substantively using prescribed fire. This option would build on that experience and expand its use where economically feasible and socially acceptable.

A second opportunity is to expand into areas with prescribed fire potential, yet evidence of current, widespread application is lacking (Prescribed Fire B, figure 3.3). These include many areas in the West as well as counties in the central Appalachians. Implementing prescribed fire regimes in these regions likely will require additional training and resources, as well as outreach and coordination with the communities that are most likely to be affected. Environmental challenges to meeting land management objectives, especially in rangeland systems with invasive species (e.g., cheatgrass) or critical wildlife habitat, will have to be addressed appropriately and may constrain opportunities, as will the economic costs of introducing prescribed fire in areas under stress.

The third opportunity (Prescribed Fire C, figure 3.3) includes counties that have areas with potential for prescribed fire, but perhaps not to the extent as in counties displayed in Figures 3.3 as Prescribed Fire options A or B. As an example, these include counties where a smaller proportion of the total county area is suitable for prescribed fire, but it generally occurs in remote areas in large contiguous blocks. These include Western counties with areas of low road density and where more than 25 percent of the total county area is suitable for prescribed fire. Remoteness presents the advantage of possibly fewer conflicts with human communities, but the disadvantage of potentially higher application costs and difficulty of control.

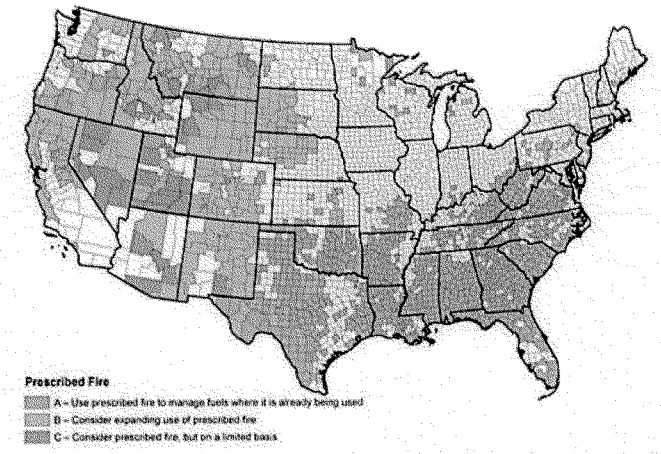
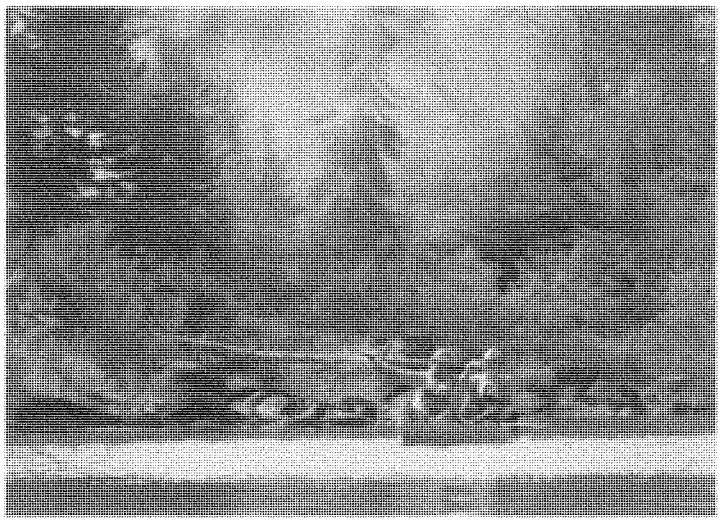


Figure 3.3. Prescribed Fire. Spatial distribution of the three management options suggested for maintaining or increasing the use of prescribed fire

***Conclusion**: Prescribed fire is a useful tool with potential for widespread increased application. Three possible options are identified, which collectively total approximately 55 percent of the land area of the conterminous 48 states. Considerations for application of prescribed fire and public acceptance of the use of prescribed fire as a tool vary nationally. Prescribed fire has inherent risks, such as the potential to human health and safety, which must be considered at the local level and may limit application.*

Management Option: Managing Wildfire for Resource Objectives

Managing wildfire for resource objectives and ecological purposes refers to a strategic choice to use unplanned ignitions to achieve resource management objectives. Federal fire policies traditionally restricted use to Federal wilderness areas, national parks, or other remote areas under specific conditions or circumstances. These restrictions were intended to reduce risk and avoid potentially negative impacts or consequences to lands of other ownership. Guidance issued in 2009 regarding implementation of Federal fire policy ensures consistency among agencies and has led to expanded application of this method to manage wildland fuels. In contrast, most state and local jurisdictions are statutorily constrained to provide full wildfire suppression due to values at risk, human-caused fires, and protection of private lands. Like prescribed fire, allowing wildfires to burn for the purposes of ecosystem restoration or hazard reduction has inherent risk. These risks must be balanced with the potential benefits on an individual incident basis, which requires both pre-incident planning at the landscape scale and sophisticated incident management.



Firefighters used canoes and seaplanes to fight the Pagami Creek Fire in Minnesota's Boundary Waters Canoe Area Wilderness in 2011. Photo credit: Kari Greer.

Opportunities for managing wildfire for resource objectives were identified by first looking at those areas where prescribed fire was deemed suitable. Counties where managing wildfire for multiple benefits in forested landscapes seems plausible (Wildfire for Resource Benefit A, figure 3.4) are identified separately from those counties dominated by non-forest vegetation where this tactic might also be applied (Wildfire for Resource Benefit B, figure 3.4). Both management options for wildfire for resource benefit in forested landscapes (A) and non-forested landscapes (B) are associated with rural areas with few roads, low numbers of ignitions (mostly natural), moderate flame intensities, and large contiguous blocks of natural vegetation. The forested areas have a high percentage of Federal ownership (primarily USFS, Bureau of Land Management (BLM), or NPS) and a mix of FRGs I, II, and IV. Non-forested areas include counties with low Federal ownership and FRGs II and IV. In some areas, management constraints will limit opportunities for managing wildfire. For example, sage grouse conservation efforts focused on preserving critical habits from wildfire is a significant constraint in many areas and warrants special consideration.

A third set of counties was highlighted where the landscape characteristics suggest potential ecological benefits from managing wildfire for resource objectives, but the community attributes suggest a higher potential for conflicts (Wildfire for Resource Benefit C, figure 3.4). Community concerns could lead to greater restrictions and control on incident management objectives.

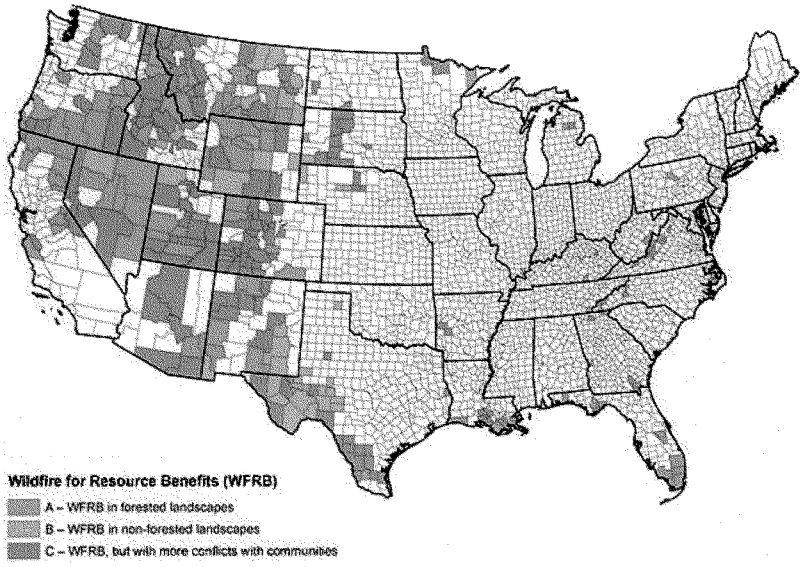


Figure 3.4. Wildfire for Resource Benefits. Spatial pattern of counties where options for managing wildfires for resource objectives and ecological purposes might prove useful

***Conclusion**: Managing wildfire for resource objectives and ecological purposes is a useful tool for managing fire-adapted ecosystems and achieving fire-resilient landscapes, but has limited potential for broad application throughout the Nation because of its inherent risk and state statutory constraints.*

Management Option: Fuel Treatments Using Mechanical, Biological, or Other Non-fire Methods

A variety of methods that do not directly involve fire often are used to change vegetation composition and structure and alter fuels to reduce hazard. These include product utilization along with various mechanical thinning and debris disposal techniques. Non-mechanical methods can involve livestock grazing to reduce fine fuels in rangeland systems, or using herbicides to eradicate or suppress unwanted vegetation. These methods can be used wherever they are economically viable, especially where using fire as a management tool is undesirable or carries high risks. One advantage of such methods is that they often can be applied with a greater level of control over the location, timing, and desired outcome of the treatment. Mechanical treatments are particularly suited for fuels management following natural disturbances such as severe storms, intense droughts, or insect outbreaks that radically change forest structure. These aptly named "event fuels" can quickly create hazardous conditions in areas that otherwise seemed relatively benign.

An added advantage of mechanical treatments in forested ecosystems is the potential to use the removed woody material for other purposes. Forest thinning might result in excess stocking being utilized as sawlogs, wood chips, or specialty products made from small-diameter trees. If markets exist for the byproducts of the treatment, then there is a greater chance of treatments being economically viable.

Commercial timber harvest, as a viable fuels management option, has substantial potential to both offset economic costs and enhance effectiveness in many areas. Sustainable forest management for commercial timber or pulpwood can provide greater access, enhance other resource values, enhance control over both wildfire and prescribed fire, and reduce wildfire threat. To be effective in meeting fuel reduction and forest management goals, treatments must address slash and debris disposal without exacerbating spread of invasive species. Long-term interests of landowners and the strength of local markets will most likely determine the success of offsetting treatment costs. Mechanical treatments also are not wholly adequate surrogates for fire in terms of ecological effects, limiting their suitability in various situations.

Timber harvesting as part of a fuels management project on the Deschutes Collaborative Forest Project in Oregon. Photo credit: Deschutes National Forest, Sisters Ranger District.

Opportunities for using active timber markets to offset costs of mechanical fuels treatments in forests were identified by using data about timber jobs, mill production, and forested area available for mechanical treatment (Non-fire Fuels Treatments A, figure 3.5). These counties occur throughout the Northeast and Southeast, within the Pacific Northwest, and are scattered in the interior West.

A second opportunity includes non-forested counties where combinations of mechanical (mowing), chemical herbicide use, or biological control (grazing) appear feasible (Non-fire Fuels Treatments B, figure 3.5). These include the range and grasslands systems where frequent—even annual—control of vegetation might be advantageous or where it is desirable to alter vegetation composition and structure and limit fire extent. Economic costs and benefits will vary locally and depend on treatment type. For example, grazing rights or leases might be managed in ways that promote fuels management at reduced costs.

A third opportunity includes counties where mechanical treatment in forests offers considerable benefit, but where evidence of economic value or markets to support such activities is weak (Non-fire Fuels Treatments C, figure 3.5). These include major areas of the intermountain West, central Texas and Oklahoma, and scattered counties throughout the Southeast, Northeast, and Pacific Coast.

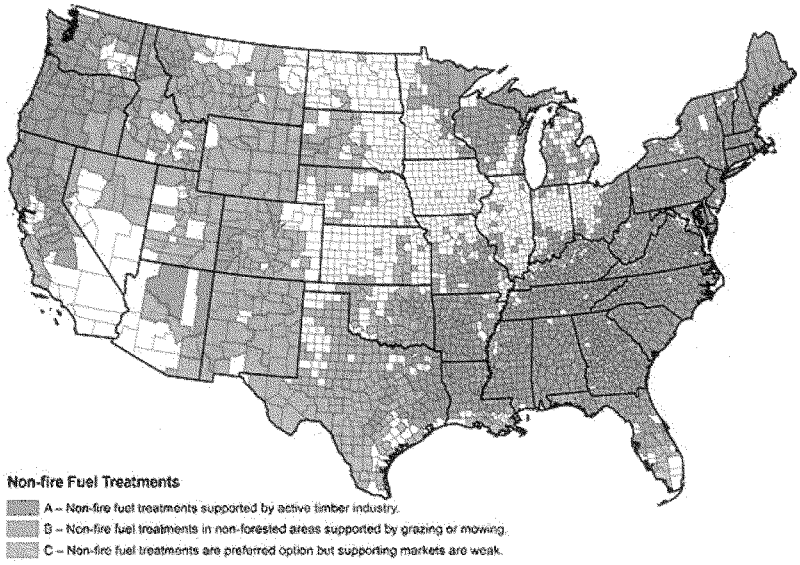


Figure 3.5. Non-fire Fuel Treatments. Spatial distribution of counties where mechanical, biological, or other non-fire treatments might be useful

A variant on the theme of non-fire fuel treatments highlights areas where economically sustainable mechanical treatment could be used as a precursor to, and combined with, safer and more expanded use of wildland fire. The intent is to use mechanical treatments strategically to reduce the risks from wildland fire use across a broader landscape. For example, mechanical treatments in pine plantations that are located between communities and wildland areas might facilitate prescribed fire use or allow greater response flexibility in the wildlands. Essentially, this involves an intersection of the management options for both prescribed fire (Figure 3.3) and non-fire fuels treatments supported by active timber industry (Non-Fire Fuels A, Figure 3.5). The net result is the management option for non-fire fuels treatments as an economic precursor to managed fire (figure 3.6), which includes many southeastern counties, the Pacific Northwest, and scattered interior counties.

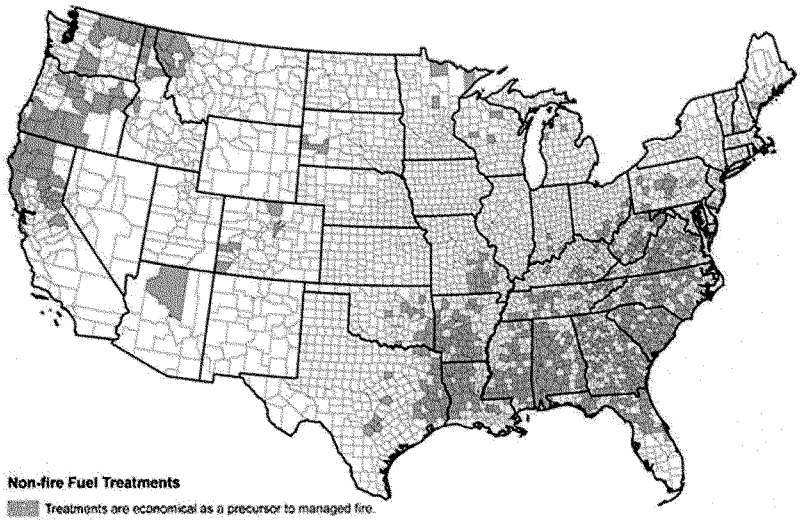


Figure 3.6. Non-fire Fuel Treatments Preceding Managed Fire. Spatial distribution of counties where mechanical treatments of forested areas might be used as a precursor to expanded wildland fire use

***Conclusion**: Fuel treatments involving mechanical, biological, or chemical methods offer many advantages in terms of greater control over the outcome and reduced risk of unintended consequences. The disadvantage is usually higher economic cost, which in some cases can be offset by active economic markets for the byproducts of the treatment.*

Homes, Communities, and Values at Risk

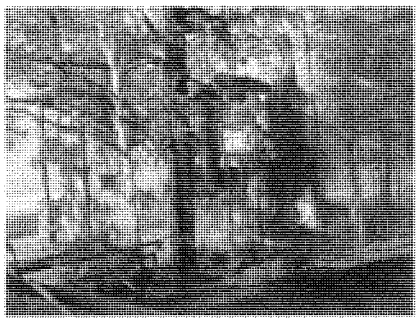
The aforementioned changes in fire regime are just one component of the overall historical changes in wildland fire that have occurred across the United States. Much has been written about the growth of the WUI and the concomitant risks from wildfire and challenges that it brings. There are several recent and accessible summaries of this literature, including Stein and others' (2013) report, *Wildfire, wildlands, and people: Understanding and preparing for wildfire in the wildland-urban interface—a Forests on the Edge report*[7] and references therein. Many of the data sets referenced by Stein and others (2013) are incorporated in the analyses described in Chapter 2 and below.

Opportunities Discussion

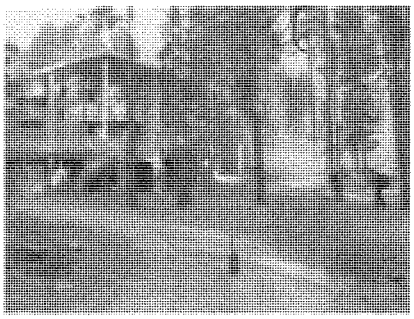
As described in Chapter 2, the motivation underlying the development of the community clusters is the recognition that risk to communities arises from the intersection of multiple factors, including the frequency and extent of wildfires, the distribution and density of homes within the WUI, and components of social vulnerability. These factors must be considered in total when identifying opportunities and designing management options for reducing risk to homes, communities, and other important values.

Many programs that strive to reduce losses to homes and communities from wildfires focus on the immediate vicinity of the home or the surrounding community. Research suggests that the public also is increasingly concerned with the overall environmental health of the land, with fire representing one influencing and important factor. Reducing the likelihood that a wildfire burning in adjoining vegetation will ignite homes or other structures is one of the more effective avenues to reducing losses. Individual homeowners can take many actions, but others require concerted effort at the community level to be effective. Similarly, community efforts without commensurate attention by local home and business owners are unlikely to succeed. Therefore, actions by property owners to reduce the ignitability of homes and other structures are prudent wherever structures are near flammable vegetation. Data on the incidence of buildings involved in outdoor fires suggest that essentially all communities would benefit from more attention by property owners. Beyond that first step, there are areas of higher risk where additional emphasis on home or community efforts might be placed.

[7] Stein, S.M., J. Menakis, M.A. Carr, S.J. Comas, S.I. Stewart, H. Cleveland, L. Bramwell, and V.C. Radeloff. 2013. Wildfire, wildlands, and people: understanding and preparing for wildfire in the wildland-urban interface—a Forests on the Edge report. Gen. Tech. Rep. RMRS-GTR-299. Fort Collins, CO. U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 36 p.



This home was lost because it had not proactively reduced risks posed by wildfire through homeowner action and hazardous fuels reduction before the Wallow Fire in Arizona, in 2011. Photo credit: Kari Greer.



This home was saved because it was located in a thinned area which provided safety to firefighters who burned the ground fuels around it as the Wallow Fire approached. Photo credit: Kari Greer.

Recent patterns of structures lost or buildings involved in incidents help identify areas of possible prioritization. Figure 3.7 presents a series of bar charts that show the relative area burned, proportion of structures lost, and proportion of buildings involved for each of the eight community clusters from 2002 through 2011. Here, the number of structures lost comes from an interagency reporting system that is primarily used to record larger incidents, while the count of buildings involved comes from the National Fire Incident Reporting System (NFIRS), which generally reports on more local incidents. The chart is scaled such that each set of bars sums to 100 percent. One can readily observe that the largest proportion of area burned and many of the structures lost occur in community cluster 2, while much of the area burned and the largest proportion of structures lost occur in community cluster 4. Thus, community clusters 2 and 4 are obvious candidates for greater focus on both community-level planning and individual structure protection. Community cluster 3 has the highest area burned among clusters common in the East and sizable numbers of structures involved. Community cluster 6 shares many of the same attributes with clusters 2 and 4 where it occurs in the West, and is similar to community cluster 3 in the East. Additional information on the configuration of the WUI in these four clusters reinforces the need for community-level planning, given that fires threatening homes often originate beyond the perimeter of the community itself.

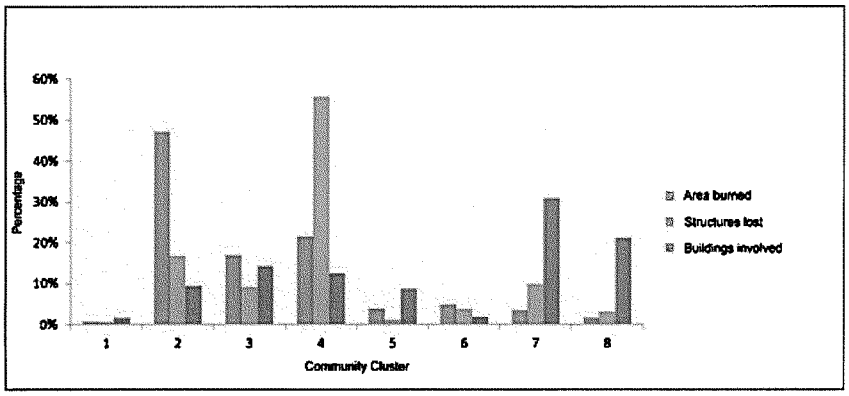


Figure 3.7. Bar chart showing the relative area burned, proportion of structures lost, and proportion of buildings involved for each of the eight community clusters. Data from 2002 to 2011.

Management Option: Home and Community Action

Community clusters 7 and 8 are distinguished by very high numbers of buildings involved and structures lost relative to the area burned. This suggests that they would benefit by focusing on protecting individual homes and actions by individual property owners. Looking more broadly, the density of structures lost or buildings involved in wildfires highlights opportunities across the United States where homes are affected by wildfire and would substantively benefit from greater individual home protection efforts (Home Defense Action, figure 3.8). Community clusters 2, 3, 4, and 6 include counties where community planning and coordinated action in combination with individual actions by property owners should be highly encouraged (Home and Community Defense Action, figure 3.9).

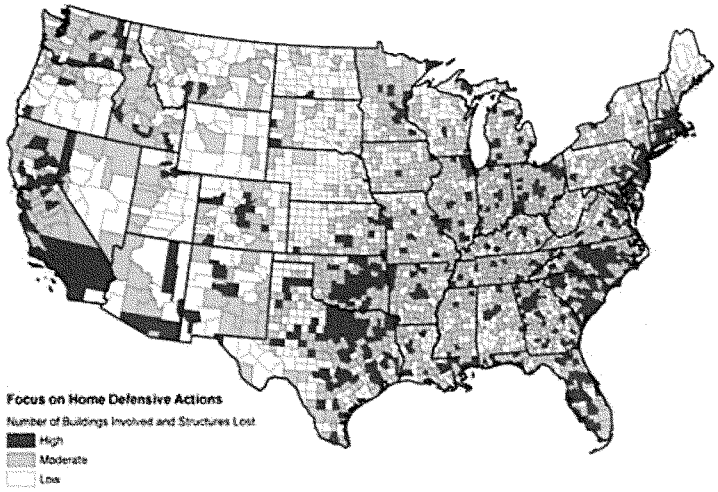
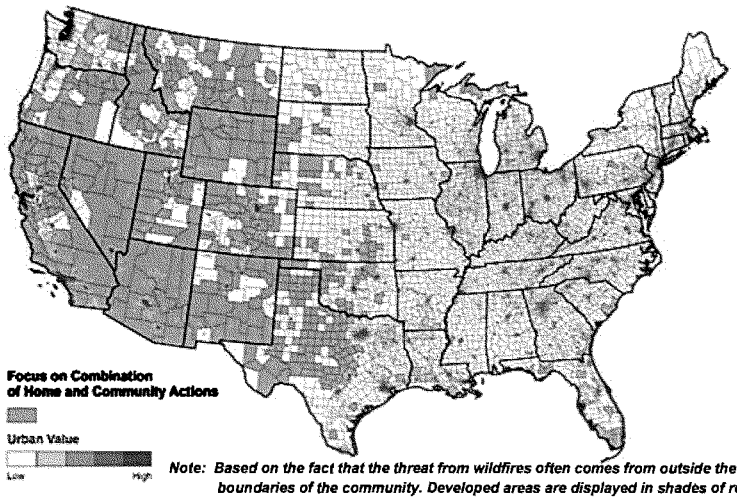


Figure 3.8. Focus on Home Defensive Actions. Counties across the Nation where homes and other structures have been involved in wildfires, suggesting greater emphasis on actions by individual property owners



***Note:** Based on the fact that the threat from wildfires often comes from outside the boundaries of the community. Developed areas are displayed in shades of red for context.*

Figure 3.9. Focus on Combination of Home and Community Actions. Counties where community-level planning is most essential

Management Option: Building Codes

One approach to making homes and other buildings more resistant to ignition is to focus on building materials and construction standards. Such standards engage individual property owners and enhance the effectiveness of community-wide actions. Building standards and adjustments in infrastructure are more easily applied to new construction and development than to existing development, and communities can be designed or managed in ways that enhance response effectiveness or mitigate risk. Changes in building codes are more likely to be effective when targeted at areas of new construction in high-hazard areas, and consequently counties with increasing WUI area or increasing WUI home density growth—the latter being more closely aligned with increasing home construction overall—suggest opportunities where such efforts are most likely to have a significant effect. Because municipal and non-municipal areas tend to exhibit varying levels of ability to implement building standards, these are mapped separately (Building Codes A and B, figure 3.10).

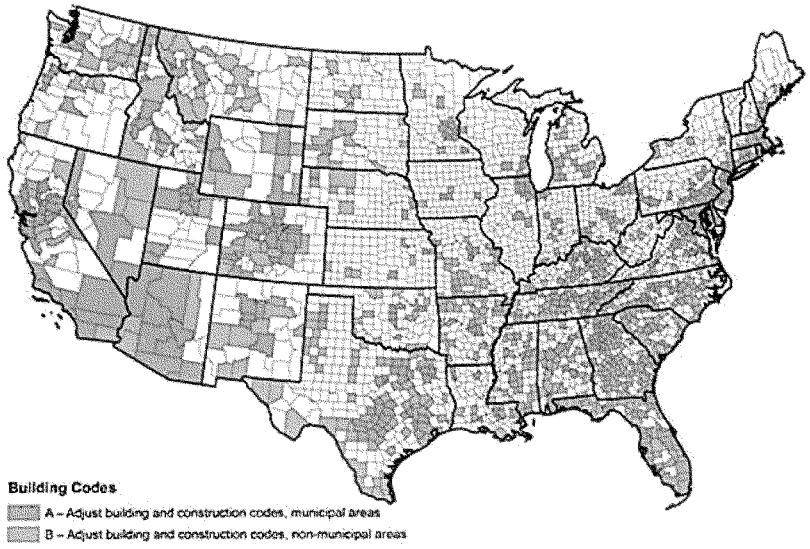


Figure 3.10. Building Codes. Counties with higher than average rates of home construction and WUI growth where building ordinances might have a more positive effect on reducing home losses

***Conclusion**: Protecting homes from ignition by wildfire is a practical step that is applicable anywhere homes can be found adjacent to natural vegetation. Similarly, coordinated action at the community level is universally advantageous, but essential when wildfires originate outside the community perimeter and threaten all residents collectively. New construction offers risk-mitigation opportunities that may not be available elsewhere.*

Human-caused Ignitions

The historical fire regimes discussed previously are a function of the underlying biophysical environment, natural ignitions, and burning patterns of Native Americans prior to European settlement for hunting, gathering, and agricultural purposes. Present day regimes are also strongly affected by the biophysical influences of vegetation, climate, and natural ignitions, but the human footprint and its effect on fire regimes is radically different than before. For simplicity, one can broadly divide wildland fire into two principal regimes—natural and human-driven. In the natural regime, fire occurrence and extent is primarily driven by environmental variables including vegetation and weather, and natural ignition sources (primarily lightning). The human-driven regime reflects the primary influence of human-caused ignitions and the influence of suppression activities. Much like historical fire regimes, the present-day effects of humans and nature cannot be spatially disaggregated cleanly. That is, both operate within the same geographical landscape. At any particular point on a landscape (or point in time), one or the other may be dominant but not exclusive. The implications of the differences between human and natural causes are clearly important to the concept of designing management options to affect ignitions.

The difference between the natural and human-driven regimes can be illustrated by looking at seasonal patterns of wildfire occurrence and the area burned by fires of different causes. Figure 3.11 depicts the bi-weekly pattern of fire occurrence attributed to three different causes: accidental, incendiary, and natural, compiled from a combination of Federal, state, and local data sets. The most commonly reported causes are accidental, which include debris burning, fireworks, equipment, campfires, and others. Incendiary fires include malicious arson events or other incidents where fires were set intentionally using incendiary devices. Figure 3.11 also indicates the close agreement in time between accidental and incendiary ignitions. In contrast, natural ignitions have a very strong and consistent seasonal pattern that rises in the spring, peaks in the summer, and declines in the fall. The seasonal pattern in area burned as a result of these different causes displays an interesting periodicity in which the area burned due to natural ignitions exceeds that from other causes through late spring and summer (figure 3.12).

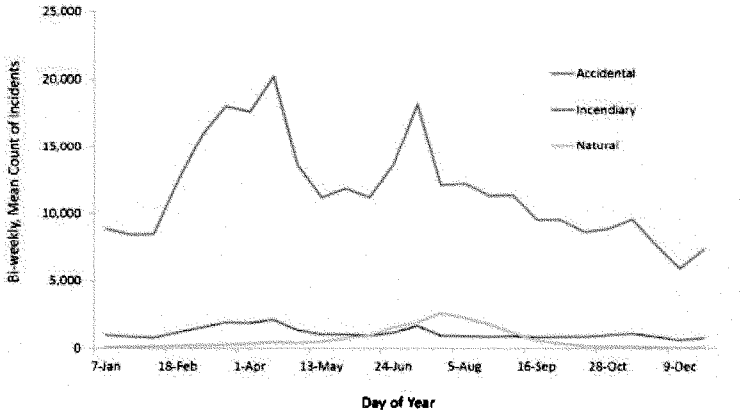


Figure 3.11. Smoothed time trace of wildfire incidents reported and attributed to different causes throughout the United States, 2002 through 2011

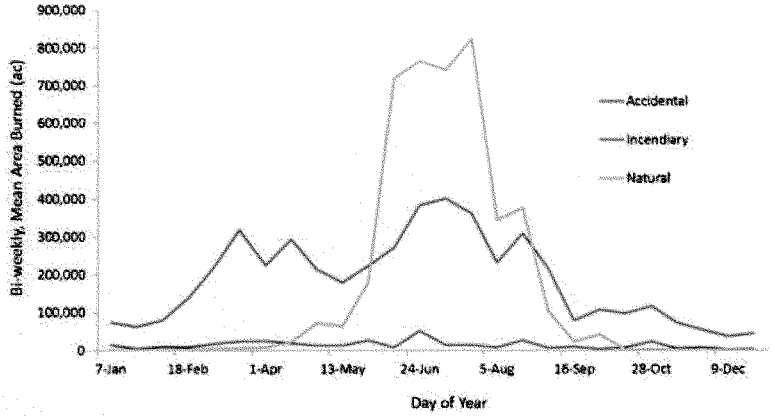


Figure 3.12. Smoothed time trace of area burned from incidents attributed to different causes throughout the United States, 2002 through 2011

Opportunities Discussion

Clearly, human ignitions are the predominant cause of wildfires throughout the United States. In the conterminous 48 states, more reported incidents began with human-caused ignitions than from natural ignitions in 98 percent of the counties. The area burned from these human-caused fires exceeds that from natural ignitions in 94 percent of the counties. Only in more remote counties of the West is the pattern reversed.

Smokey Bear and a fire danger sign in Georgia remind the public to be careful with fire to reduce ignitions. Photo credit: National Interagency Fire Center Archive. Bugwood.org.

Programs that target the prevention of human-caused ignitions have the potential to substantively affect wildfire occurrence and extent in essentially every county. There is a need to support fire prevention educational efforts as well as to develop adequate and enforceable state and local ordinances related to wildfire prevention. Examples of the latter include burn permitting systems and enhanced law enforcement efforts focused on fire. There is clear evidence that small investments in fire prevention help reduce the high cost of fire suppression, as well as associated wildfire damages. Such programs are most effective when they focus on the underlying causes of these human-caused ignitions in each location, and tailor the prevention programs to specific causal factors and community dynamics.

Management Option: Reduce Accidental Ignitions

The first option highlights counties where the intent or focus would be to substantively reduce the number of accidental ignitions (Reduce Human-caused Ignitions, figure 3.13). Counties were divided into two classes based on ignitions: those with either higher or lower than normal numbers of human-caused incidents (the median is used to define "normal"). Similarly, counties were split based on the area burned by human-caused ignitions relative to the national median. Combinations of these two divisions were used to create a four-color map of the Nation. Counties falling into the high-high combination are found predominantly in the southeastern and south-central states and in the far West. The Northeast has a high percentage of the high-ignition-density, low-area-burned counties, while the interior West displays the bulk of the low-ignition-density, high-area-burned counties.

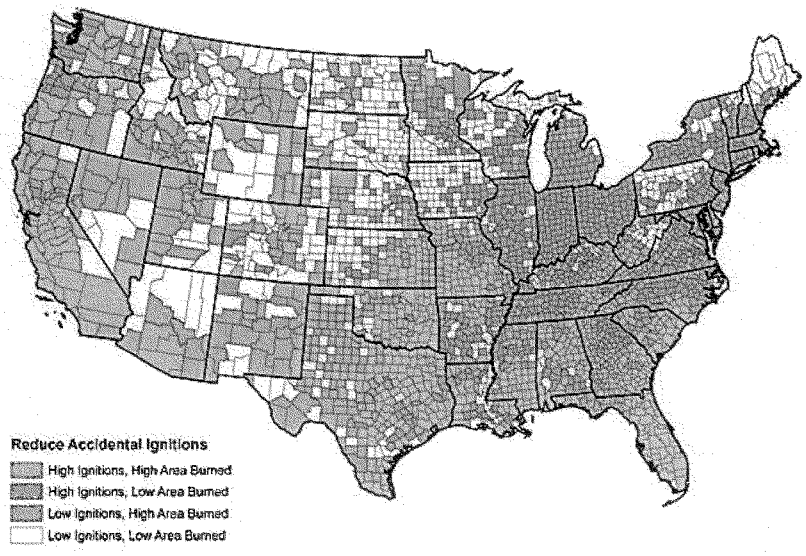


Figure 3.13. Reduce Accidental Ignitions. Spatial distribution of counties differentially affected by either high or low numbers of accidental ignitions and high or low area burned by accidental ignitions

Management Option: Reduce Intentional Ignitions

The second option similarly focuses on areas experiencing higher than normal incendiary ignitions or the area burned by such fires (Reduce Human-caused Incendiary Ignitions, figure 3.14). There is more congruence between ignition density and area burned with incendiary fires than with accidental fires. Thus, large portions of the East and more populated counties of the West exhibit a combination of both high incendiary ignitions and high area burned.

The NSAT assembled data sets that include a broad set of community metrics and more detailed causal information that can be explored to target specific causal factors within the various community contexts. For example, debris burning is one of the principal causes of accidental fires; its occurrence varies considerably among community clusters.

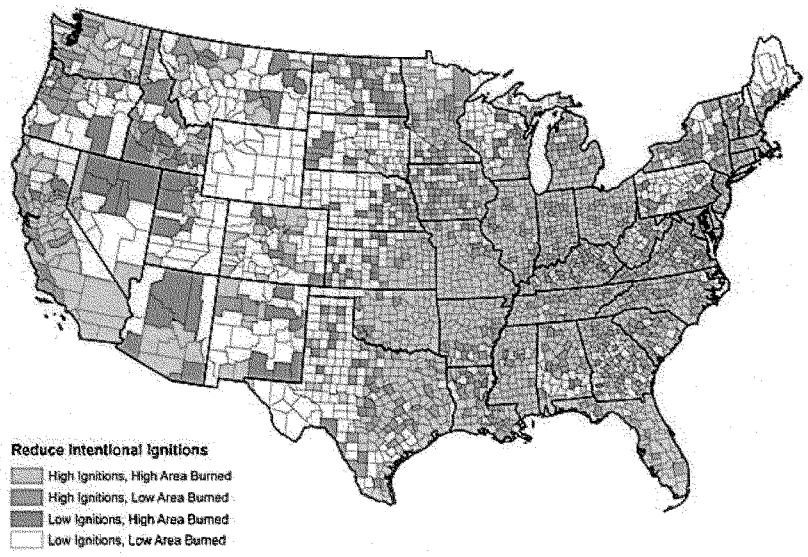


Figure 3.14. Reduce Intentional Ignitions. Spatial distribution of counties differentially affected by either high or low numbers of incendiary ignitions and high or low area burned by incendiary ignitions.

***Conclusion**: Human-caused ignitions, whether accidental or incendiary, are a universal problem that affects much of the United States. Targeting regions or counties with higher-than-normal levels of activity could prove productive, especially if targeted at specific causes.*

Effective and Efficient Wildfire Response

The United States benefits from an extensive and sophisticated wildland fire response organization composed of thousands of separate local, state, tribal, and Federal entities. Each organization has specific responsibilities for responding first to wildfires occurring within their jurisdiction (initial response). They also coordinate and share resources and responsibilities as fires become larger and exceed the local response capacity, requiring a more extended suppression response. Fortunately, local response capacity is generally adequate for controlling or extinguishing most wildfires, though escalating risks due to changing conditions in and around communities may impact response effectiveness in the future. Such preparedness does not come cheap; Federal suppression response expenditures alone in 2005 to 2012 exceeded on average $1.5 billion dollars per year.

The relatively small percentage of fires that escape initial response are vitally important, as they account for a disproportionate percentage of the area burned, damage to homes and communities, and injuries and fatalities. For example, a summary of available data shows that the top 3 percent of fires in terms of individual fire sizes account for over 90 percent of the total area burned nationwide from 2002 to 2011. Another way of viewing this is that if an additional 1 percent of the fires in the United States were to reach the size of the current top 3 percent, the total area burned would increase by 30 percent. Relatively few large fires also account for a major portion of total suppression costs nationwide, and the variation in large fires from year-to-year results in significant swings in total suppression expenditures. This variability creates major challenges from both a planning and funding perspective.

An effective and safe collective response organization is essential. Response is the last line of defense and action, coming after fires have started and there is little recourse. As with any large, complex endeavor, there are opportunities to increase efficiency (i.e., use resources to maximum advantage). Finding ways to contain large wildfires more efficiently is an ongoing and continuous struggle and an area of active research. Possible solutions generally include combinations of resources, organizational or administrative adjustments, and tactics. An additional avenue to improving efficiency is to match response efforts with other management options. For example, response personnel will find it easier to protect homes and communities when those same homeowners have proactively reduced hazards around their homes and prepared for wildfires.

Coordinated response is a complex nationwide issue. Multiple institutional arrangements have been negotiated and developed across the country to meet the challenge of delivering the appropriate resources and personnel required on each incident. The RSCs and others examined various ways of improving coordination within their regions and have suggested actions for improvement. Implementing these recommendations will require working through the details among the various national, regional, and local governance organizations. Analyzing the full implications of these varied recommendations is beyond the scope of this report. Several of the data sets that the NSAT accumulated could be useful within forthcoming regional and local discussions of these issues. At the national level, it is possible to highlight patterns that suggest areas of greater concern, or alternatively where a combination of response with other policy options might play out differentially.

State resources responding to the 2007 Georgia wildfires. Photo credit: Ken Masten, Georgia Forestry Commission, Bugwood.org

Opportunities Discussion

Because large wildfires cause significant challenges, it is important to know where large, long-duration wildfires are likely to occur and plan accordingly. Normative terms like "large" and "long-duration" are context-dependent. For example, a large fire in the intermountain West may imply thousands of acres, whereas a fire exceeding a few hundred acres in New England would be unusually large. Identifying a national standard that reflects these nuances is difficult. For analysis purposes, we defined an index of fires of concern (FOC) as being greater than 1 square mile in extent and at least two weeks in duration (from report to containment). The two standards work in tandem. Larger western fires tend to be constrained by duration; fires lasting more than two weeks are generally much larger than 1 square mile. In the eastern United States, the size constraint ensures that long-duration fires are of consequential size. The 10-year record of events (2002 through 2011) shows higher frequencies of FOC in drier western counties, coastal areas of the Southeast, the southern Appalachians, and the upper Midwest (figure 3.15).

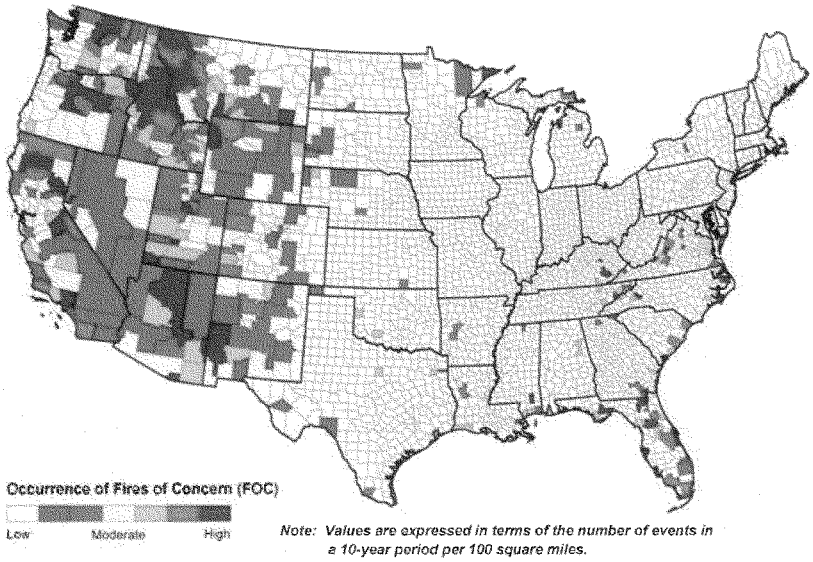


Figure 3.15. Relative frequency of occurrence of fires of concern during the period 2002 to 2011

Management Option: Prepare for Large, Long-Duration Wildfire

Realistically, 10 years is too brief an interval to precisely estimate the chance of a relatively rare event. A more inclusive estimate of where these larger, longer-duration fires might occur in the future is obtained by extrapolating the 10-year sample to all combinations of resiliency classes and community clusters.[8] The resulting map indicates that much of the West, Southeast, and mid-Atlantic regions display areas of relatively higher probability for fires of concern, as well as scattered counties of the upper Midwest (Prepare for Large, Long Duration Wildfire, figure 3.16). In these areas, preparing for large, long-duration wildfires is presented as a national response opportunity and management option.

[8] Extrapolation requires treating the entire area within a combination class as a single sample unit rather than analyzing individual counties. Highly urban areas (Landscape Class A) are precluded from extrapolation due to high intraclass variation.

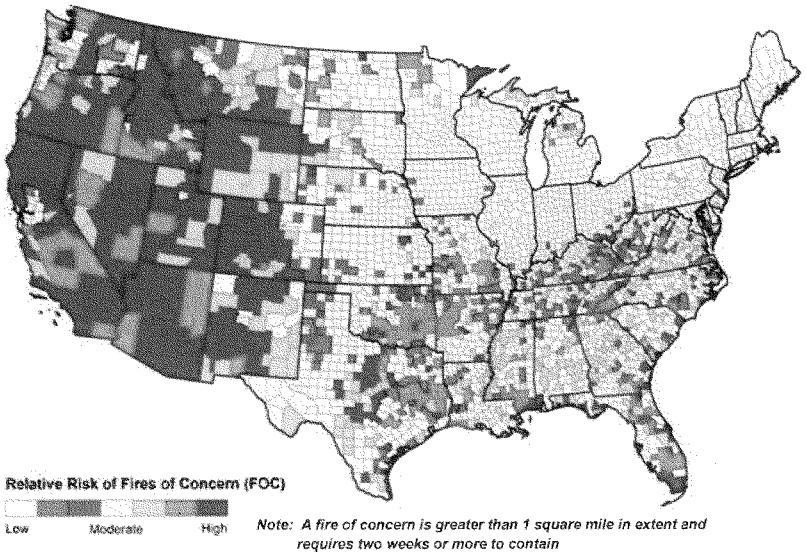


Figure 3.16. Prepare for Large, Long-Duration Wildfire. The relative risk of experiencing a wildfire

Management Option: Protect Structures and Target Landscape Fuels

A second opportunity related to larger fires focuses on the relationship between area burned (as reported in Federal and state records) and structures lost (as reported in the nationwide ICS-209 incident reporting system). An index of the rate at which structures are lost relative to the area burned was created and compared to the area burned itself. A four-color map reflecting the intersection of those two indices reveals an interesting pattern (Protect Structures and Target Landscape Fuels, figure 3.17). The combination of high rates of structure loss with low area burned is dominant in the Central Plains and Eastern regions. Prioritizing response resources towards structure protection in these areas seems prudent. Conversely, the Intermountain West exhibits most of the area with high rates of area burned, but relatively lower rates of structures lost per unit area burned. The opportunity to employ greater flexibility in the tactics used in suppressing and containing fires in this region might be explored. Greater flexibility could lead to enhanced ecological benefits, reduced overall suppression costs, and perhaps less direct risk to firefighters.

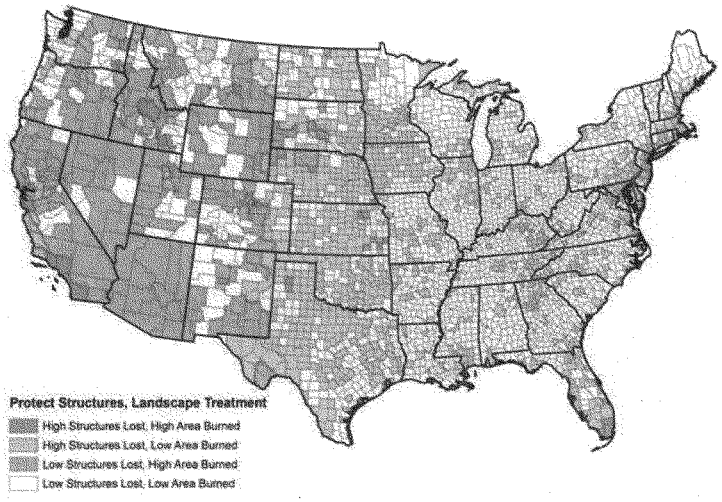
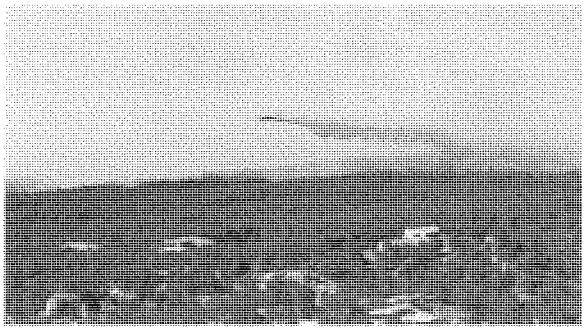


Figure 3.17. Protect Structures and Target Landscape Fuels. Spatial pattern of counties where the numbers of structures lost per area burned is high relative to the area burned, vice versa, and where both indices are high

Counties exhibiting a combination of both high area burned and high structure loss rates are few in number, but highlight some of the most problematic counties in the Nation from a response perspective. Management efforts to simultaneously emphasize structure protection in combination with efforts to reduce fire size through either increased response capacity or pre-fire fuels management seem warranted.



Aircraft applying slurry to try to protect a subdivision built in the wildland-urban interface of Colorado Springs, Colorado, from the approaching 2013 Black Forest Fire. Photo credit: U.S. Army photo by Sgt. Jonathan C. Thibaut

Management Option: Protect Structures and Target Ignition Prevention

The final response opportunity is most relevant to initial response, which often is the responsibility of a local fire department or agency. Data from NFIRS were examined and indices computed of the numbers of buildings involved per incident and the relative frequency of reported accidental human-caused ignitions. The intersection of higher-than-normal values for these variables indicates that the number of buildings involved per reported incidents is one of the few variables lacking a strong geographical pattern. In contrast, the relative frequency of accidental ignitions tends to be higher in the East and more populous areas of the West. The intersection of these two variables has an interesting pattern that illustrates the widespread extent of the challenges in managing wildfire risk and offers a guide to matching structure protection with prevention efforts (Protect Structures and Target Ignition Prevention, figure 3.18). Reducing human-caused ignitions should result in a commensurate reduction in the workload of local response organizations and considerably less risk to structures throughout much of the East and populous Western counties. Throughout much of the remainder of the country, it is expected that buildings frequently will be involved in local incidents, even if the overall number of responses is relatively low.

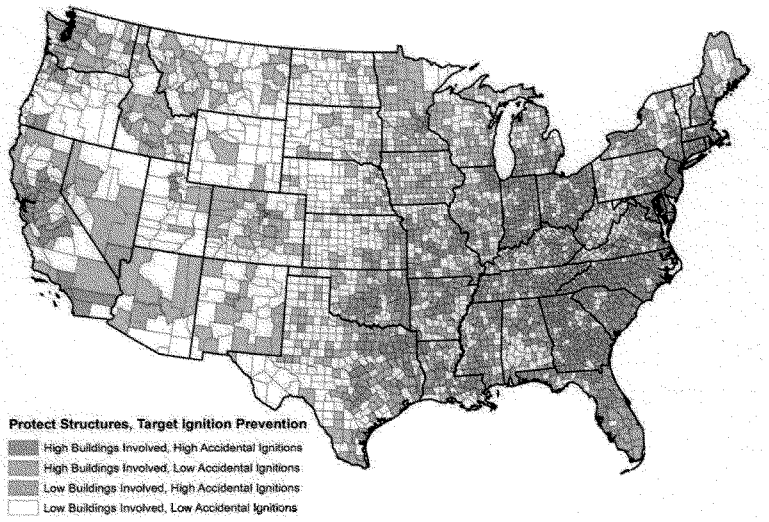


Figure 3.18. Protect Structures and Target Ignition Prevention. Spatial pattern of the intersection of counties with higher than normal numbers of buildings involved per incident with the relative numbers of accidental human ignitions

***Conclusion**: Initial and extended responses are complex and difficult to analyze, particularly at a national scale. Examining data on area burned, structures lost, and patterns of accidental ignitions provides a backdrop for understanding some of the response challenges facing local, state, tribal, and Federal fire departments and agencies.*

Chapter 3 Summary

This chapter began with a simple conceptual model of wildland fire that highlights the five factors most responsible for determining the occurrence, extent, and intensity of wildfires; demonstrates how risk ultimately depends on exposure; and suggests strategic actions that contribute to reducing risk. The ensuing analysis and discussion clearly demonstrates, however, that the pathways between actions, causes, and consequences are not straightforward, but involve numerous complexities and nuances.

Four national challenges were identified:

- ***Vegetation and Fuels***. The slow but steady accumulation of vegetation in areas that historically burned at frequent intervals exacerbates fuel conditions and inevitably leads to higher intensity fires that are more damaging, more costly, and threaten the safety and security of both the public and firefighters.
- ***Homes, Communities, and other Values at Risk***. Many homes and communities are at risk simply because of their proximity to, or juxtaposition with, flammable natural vegetation in environments conducive to wildland fire. Similarly, other key values including infrastructure and ecological services are increasingly threatened by uncharacteristic wildfires.
- ***Human-caused Ignitions***. Human-caused ignitions are a universal problem that account for the majority of reported wildfires throughout the Nation. The prevalence of human-caused ignitions requires an ever-present response organization in most locations.
- ***Effective and Efficient Wildfire Response.*** The United States uses a highly capable and effective multi-jurisdictional response capacity that quickly suppresses the vast majority of wildfires. Large or long-duration wildfires pose major challenges to response because of their inherent costs—both economically and ecologically—and the threats they pose to health and safety.

Fire regimes inevitably will change due to changing climatic conditions, population expansion and accelerated human development, impacts from invasive species, changes in resource utilization (food, fuel, and fiber), and other agents of landscape change. All are potentially important; all remain uncertain; all are active areas of research. Predictions of future conditions remain speculative, but the changes will likely exacerbate the challenges of managing wildland fire, not diminish them. Current conditions provide the best predictor of the immediate future until greater clarity is achieved. Our collective ability to meet tomorrow's challenges will depend greatly on how well we meet today's challenges.

Multiple opportunities for meeting today's challenges were explored using the empirical data assembled and analyzed by the NSAT. These opportunities are displayed as a series of options, summarized in table 3.3. The insights gained by exploring each option are used along with the understanding of national differences described in Chapter 2 as the foundation for a national strategy.

Table 3.3. Summary of management options

National Goals	National Challenges	Management Options*
Restore and Maintain Landscapes	Vegetation and Fuels	Prescribed Fire: Expand or maintain in areas of current use (figure 3.3) Prescribed Fire: Expand into areas of limited current use (figure 3.3) Prescribed Fire: Utilize on a limited basis (figure 3.3) Manage wildfires for resource objectives: In forested systems (figure 3.4) Manage wildfires for resource objectives: In non-forested systems (figure 3.4) Manage wildfires for resource objectives: In areas where increased awareness of community risk is necessary. (figure 3.4) Non-fire Treatments: Supported by forest products industry (figure 3.5) Non-fire Fuels Treatments: In non-forest areas (figure 3.5) Non-fire Fuels Treatment: In areas with limited economic markets (figure 3.5) Fuels Treatments as a precursor to prescribed fire or managed wildfire (figure 3.6)
Fire-adapted Communities	Homes, Communities, & Values At Risk	Focus on home defensive actions (figure 3.8) Focus on combination of home and community actions (figure 3.9) Adjust building and construction codes, municipal areas (figure 3.10) Adjust building and construction codes, non-municipal areas (figure 3.10)
Respond to Wildfires	Human-caused Ignitions	Reduce accidental human-caused ignitions (figure 3.13) Reduce human-caused incendiary ignitions (e.g., arson) (figure 3.14)
	Effective and Efficient Wildfire Response	Prepare for large, long-duration wildfires (figure 3.16) Protect structures and target landscape fuels (figure 3.17) Protect structures and target prevention of ignitions (figure 3.18)

***As related to addressing national challenges and in support of the three Cohesive Strategy goals. The three national goals are both related and interdependent upon each other, making management options supportive of achieving progress in all three goal areas but to varying degrees.**

CHAPTER 4 – THE NATIONAL STRATEGY

The first phase of the Cohesive Strategy began with the vision statement, "*Safely and effectively extinguish fire, when needed; use fire where allowable; manage our natural resources; and as a Nation, live with wildland fire.*" From there, three national goals and a set of guiding principles and core values were established. Since then, efforts have been progressively moving from goals and principles to actions. Success within the Cohesive Strategy requires finding balance. This balance is encapsulated within the vision statement. Finding acceptable balance is not a scientific optimization problem, but a sociopolitical exercise which science can advise.

The options explored in Chapter 3 suggest opportunities where management actions can be employed and leveraged to explicitly advance the national goals of the Cohesive Strategy. The options were intentionally crafted such that they are not mutually exclusive. That is, choosing to emphasize one option does not preclude implementing other options as well, even in the same location. Indeed, implementing multiple options is likely to have a synergistic or mutually reinforcing positive effect.

Having a set of options available to choose from is important, but it is not yet a strategy. In these times of limited fiscal resources, hard choices have to be made. Every choice involves a question of value, and unfortunately, not everything is a win-win solution. Choices made at a national or regional level to emphasize one option or set of activities over another invariably affect all constituencies differentially. The hardest part of defining a national strategy is deciding who does what, when, and where. Although many details will be worked through in collaborative exercises at multiple scales, the blueprint for those deliberations and commitments comes from national-level spatial and temporal prioritization.

This chapter seeks to explicitly define those national priorities using the information assembled and described in preceding chapters.

Risk Tradeoffs

One unavoidable tenet of risk management is that choices made today affect all future options. For example, management choices made in the past have disrupted historical fire regimes, such that wildfires today are of much different character, magnitude, and extent than those that burned centuries ago. The net result is that vegetative fuels on much of the landscape exceed historical levels, continue to accumulate, and are likely to contribute to larger, higher-intensity fires. As a Nation, we must either accept and prepare for that eventuality or take active steps to reduce fuels. Fuel reductions carry their own risks, however, whether it comes from fire use or unintended collateral effects on other ecological or social values. Thus, all choices inherently involve trading one set of values for another.

The temporal nature of tradeoffs can be visualized as a series of curves reflecting various assumptions related to the level of risk or expected losses over time under different national policy scenarios (figure 4.1). Line A in Figure 4.1 represents the risk trajectory expected under a continuation of current policies and investments. This scenario assumes that fuel loads are accumulating in much of the landscape, expansion of the WUI continues, and climatic changes, invasive species, and other environmental factors are likely to contribute to worsening risk. More importantly, the incremental change in risk over time escalates at an increased rate. This leads to an ever-increasing slope much like the common compound interest curves in finance.

An alternative scenario is to return to near-historical levels of wildland fire. This scenario would aggressively address the fuels problem—leading to reduced long-term risk—but also quickly escalate overall risks beyond what is likely to be acceptable in many communities (Line B). The increase in risk seen here comes from much greater prescribed fire use and expansive use of unplanned ignitions for resource benefits.

A more ideal solution is a trajectory that marginally increases risk in the short term, but begins paying long-term benefits relatively quickly and keeps risks at manageable levels (Line C). This trajectory is consistent with the Cohesive Strategy goals of restoring and maintaining fire-resilient landscapes, creating fire-adapted communities, and safely and effectively responding to wildfire. The temporal nature of the curve helps conceptualize a national strategy that addresses risk in the immediate and short term as well as the longer-term future. The exact trajectory cannot be fully known. Each area of the country will follow a unique path, but there will be a point at which the level of fuel treatment is adequate to temper fire behavior to manageable, non-destructive levels. Simultaneously, the investments and priority actions undertaken within and near communities will increasingly reduce losses to homes and communities. The potential rise in risk in the near term is related to the risk associated with expanding the use of fire as a tool to manage fuels. This scenario also assumes that response is commensurate with local needs and works in tandem with other programs and activities.

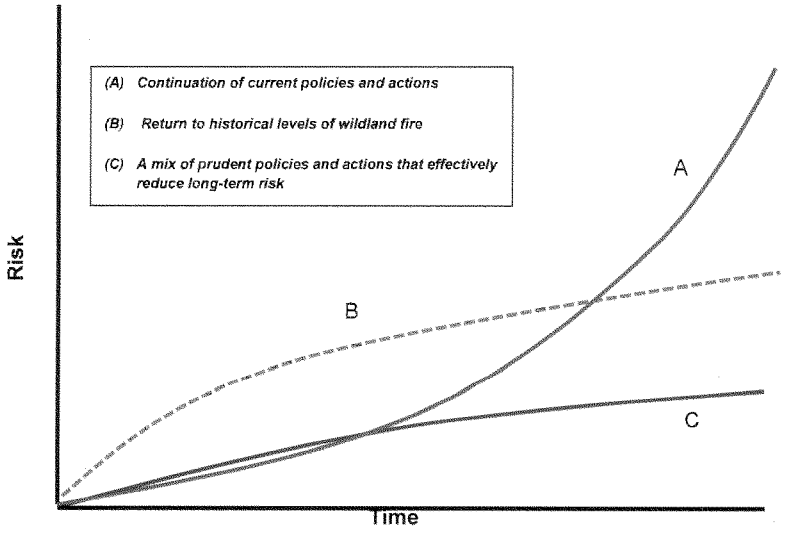


Figure 4.1. Three hypothetical scenarios for temporal trends in risk nationwide

Attaining the national risk trajectory described above and characterized by Line C will not be simple or easy. Three key assumptions or premises underlie meaningful reductions in risk:

1. **Prioritization of investment and use of resources.** Reducing risk significantly will require that existing resources are used more efficiently. From a national perspective, this may require reallocation of resources across agencies, geographical areas, or program areas.

2. **Acceptance of increased short-term risk.** Significantly reducing fuels across broad landscapes will require expanded use of wildland fire to achieve management objectives. Using fire as a tool carries inherent risks that must be considered in the short-term to achieve the longer-term benefits.

3. **Greater collective investment.** Even with greater efficiency and acceptance of short-term risk, current levels of investment may be inadequate to achieve the levels of risk reduction desired. All who have a stake in the outcome, from individual property owners to the Federal, state, tribal, and local governments, must share the costs and level of effort necessary to redeem responsibilities for reducing risks posed by wildfire.

The wide variation in conditions and circumstances across the country makes it impractical to identify specific actions that are best suited to each and every location. Nevertheless, the analysis of landscape classes and community clusters in Chapter 2 can be combined with management opportunities explored in Chapter 3 to suggest potential national priorities for increased emphasis.

In the following sections, the general principles for the National Strategy are outlined and the four national challenges are revisited to create spatial prioritization maps for the Nation.

National Guidance

The first element of this National Strategy is a set of heuristics or rules of thumb to provide basic guidance when planning activities. Such heuristics are meant to be broadly applicable and generally accurate, but not rigidly enforced when local circumstances suggest more prudent courses of action.

The first rule is that safe and effective response to wildfires must be the highest priority of the National Strategy. Placing priority on protecting the safety and health of the public and firefighters implies the need for, and assumption of, a safe and effective response organization. This presumes that immediate threats are the most important—and wildfires are an immediate threat throughout the country. Improving preparedness can take many forms. Although resources such as equipment and personnel improve the ability to respond, improved coordination, communication, and training are important components of intergovernmental preparedness and should be included regional or national strategy. Large wildfires that threaten entire communities are relatively rare, yet their impact on public perception and the reality that large fires near communities can have catastrophic consequences requires special attention.

General guidance regarding response includes:

- Enhance wildfire response preparedness in areas more likely to experience large, long-duration wildfires that are unwanted or threaten communities and homes.
- Enhance wildfire response preparedness in areas experiencing high rates of structure loss per area burned.

- At the community level, emphasize both structure protection and wildfire prevention to enhance the effectiveness of initial response.

It would be shortsighted to assume that a safe and effective response to fire is the only priority. Indeed, one could argue that the suppression challenges today are symptomatic of more fundamental underlying issues. The current trajectory of increasing risk cannot be headed off by simply adding more preparedness and suppression resources.

The gradual accumulation of wildland fuels is perhaps the most difficult and challenging issue to address. An analogy can be made to walking up the down escalator. One has to be moving just to stay in place; the only way to move up is to move faster than the escalator is moving down. Despite current investments in priority areas being treated through fuels management or burned in wildfires, some landscapes are accumulating fuels at a rate faster than can be managed. Broad-scale efforts to reduce fuels across the landscape can be expensive and time-consuming and require strategic coordination regardless of which type of fuels management activity is implemented. Prescribed fire and managing wildfire for resource objectives have the greatest potential for treating large areas at lower cost than mechanical treatments, but use of fire entails greater inherent risk that must be addressed at a local level. Mechanical, biological, or chemical treatments play an important role wherever they are economically feasible. Success in collectively investing in managing fuels nationally with measurable results in the short- and long-term will not be achieved overnight.

General guidance regarding vegetation and fuels management include:

- Where wildfires are unwanted or threaten communities and homes, design and prioritize fuel treatments (prescribed fire, and mechanical, biological and chemical treatments) to reduce fire intensity, structure ignition, and wildfire extent.
- Where feasible, implement strategically placed fuel treatments to interrupt fire spread across landscapes.
- Continue and expand the use of prescribed fire to meet landscape objectives, improve ecological conditions, and reduce the potential for high-intensity wildfires.
- Where allowed and feasible, manage wildfire for resource objectives and ecological purposes to restore and maintain fire-adapted ecosystems and achieve fire-resilient landscapes.
- Use and expand fuel treatments involving mechanical, biological, or chemical methods where economically feasible and sustainable, and where they align with landowner objectives.

Activities that focus on individual homes or structures and community-level protection are important components of the National Strategy. Efforts that engage communities in taking proactive action before wildfires need public support, work in conjunction with other actions, enhance management flexibility in response, and are not necessarily expensive. General guidance regarding homes and communities include:

- Promote community and homeowner involvement in planning and implementing actions to mitigate the risk posed by wildfire to communities and homes situated near or adjacent to natural vegetation.
- Emphasize proactive wildfire risk mitigation actions, such as CWPPs and other methods of comprehensive community planning, where new development and expansion into natural vegetation is occurring.
- Pursue municipal, county, and state building and zoning codes and ordinances that mitigate fire risk to protect life and property from wildfire.

- Ensure that wildfire mitigation strategies consider protection of community infrastructure and values, for example, municipal watersheds, cultural assets, viewsheds, parks, and transportation and utility corridors.

Finally, actions that focus on preventing human-caused ignitions are universally prudent. Human-caused ignitions are a widespread issue that is relatively inexpensive to affect, especially when prevention programs are carefully targeted. General guidance regarding prevention efforts can be summarized as:

- Emphasize programs and activities that prevent human-caused ignitions, whether accidental or incendiary, where these ignitions, combined with high levels of area burned, suggest the greatest need. Programs should be tailored to meet identified local needs.

The North Lake Tahoe Fire Protection District, a member of the Fire-Adapted Communities Learning Network, uses block parties to bring neighbors together for an afternoon of fire education in Incline Village, Nevada. Photo credit: North Lake Tahoe Fire Protection District.

National Priorities

The second element of this National Strategy involves prioritizing which activities will be emphasized where, from a national perspective. The vision and national goals are reaffirmed in Chapter 1.
Four national challenges emerge through an understanding of regional and national issues, as described in Chapter 2. The opportunities explored in Chapter 3 suggest a broad range of actions that could advance the national goals and highlights areas where specific actions are likely to be most effective. Prioritization involves stepping back and looking at potential actions thematically and in a broader context. The concept of a national priority for thematic actions follows the premise that concerted actions are most likely to be efficient or effective in areas where conditions contributing to an issue are most acute. When implemented, the national priorities support progress toward each of the three national goals.

Figure 4.2 illustrates the basic relationship between national goals, challenges, options, spatially prioritized opportunities, and national priorities.

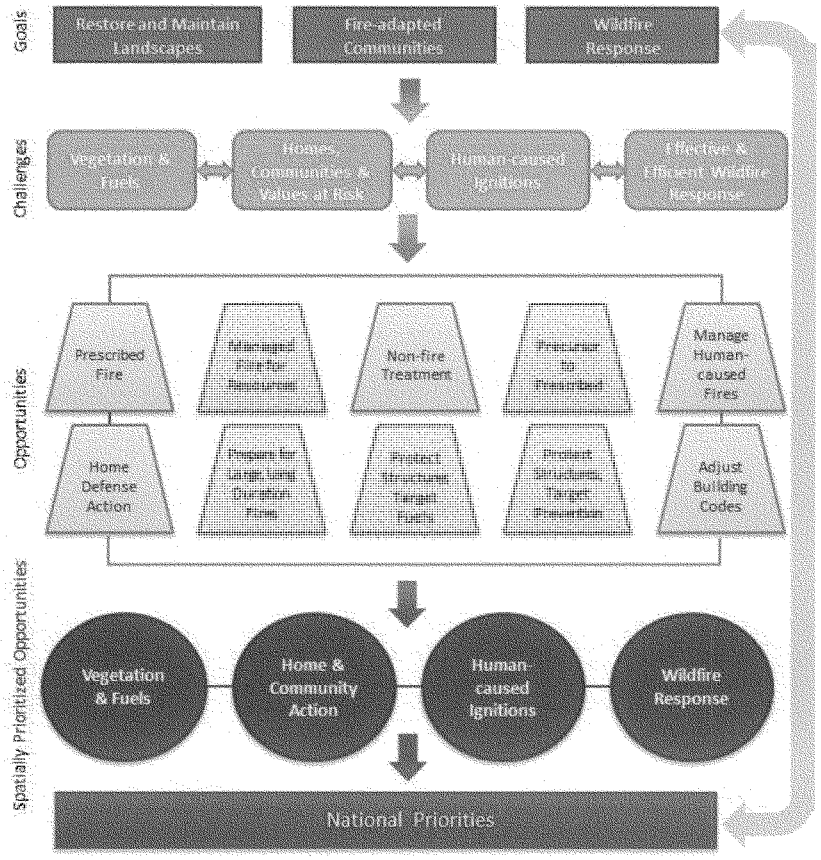
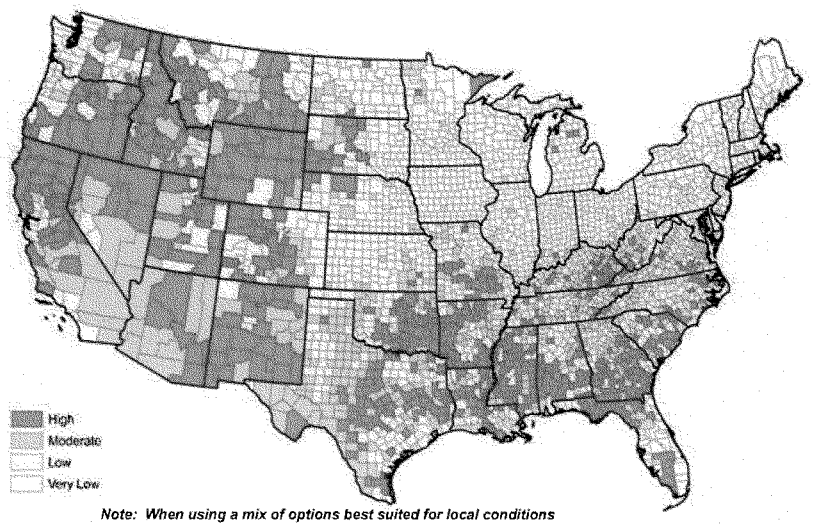


Figure 4.2. Generalized relationship between the three national goals and the development of national priorities.

The attributes of counties falling within each combination of community clusters and landscape classes were considered relative to the four national challenges. The match between county characteristics and thematic actions were then used to suggest relative priorities from a national perspective. The general process was to identify a subset of landscape classes or community clusters that were associated with higher or more troublesome levels of the variables of interest. The intersection of these identified classes and clusters created a high-priority combination class. Second-tier sets of clusters or classes were also identified and used similarly to indicate combination classes that would receive second- or third-level priorities.

Vegetation and Fuels

National prioritization of areas for broad-scale fuels management (as distinct from hazard reduction in proximity to structures) suggests a primary emphasis in the West and Southeast (figure 4.3). These included counties with the highest level of wildfire, fire-adapted native vegetation, and communities concentrated within a broader wildland landscape. Each location would use the mix of options most suitable for local conditions, as described in the options of Prescribed Fire, Managing Fire for Resource Benefit, Non-Fire Treatments, and Fuels Treatments as a Precusor to Managed Wildfire.

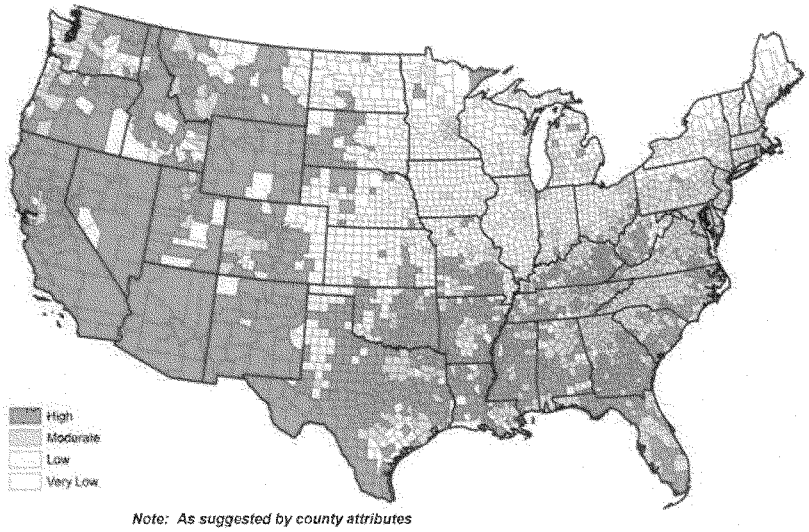


Note: When using a mix of options best suited for local conditions

Figure 4.3. National priorities for broad-scale fuels management

Homes, Communities, and Values at Risk

Candidate counties for national prioritization of community and individual homeowner action would include those described above under management options for Home Defense Action and Home and Community Action, tempered by features of each landscape class (figure 4.4). The management option of developing building codes where ordinances will have a positive effect on reducing home loss was likewise considered. Counties characterized by higher-than-average annual area burned, structures lost, and homes exposed within the WUI (especially in the West, South, and Southeast) were assigned the highest priority for community action.



Note: As suggested by county attributes

Figure 4.4. National priorities for community planning and coordination

Managing Human-caused Ignitions

The available data on human-caused ignitions and their consequences identifies counties where human-caused ignitions dominate and lead to above-average area burned or buildings impacted by wildfires. These data suggest a prioritization that would target many eastern counties and populous western counties (figure 4.5).

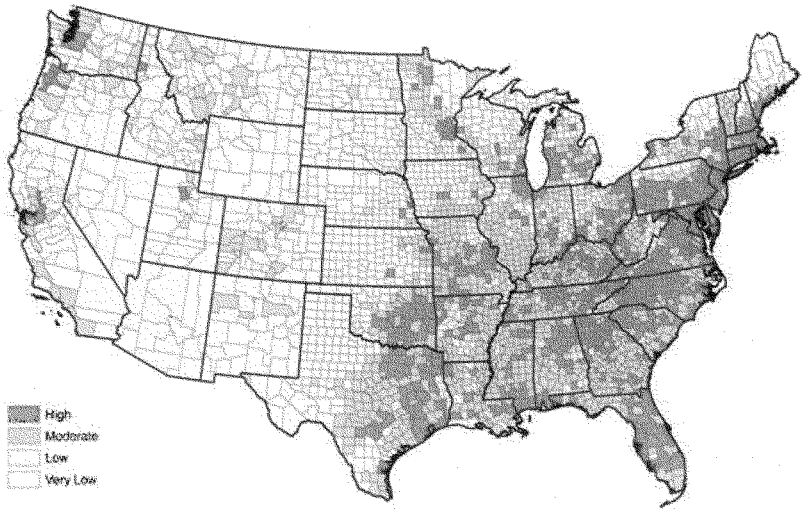


Figure 4.5. National priorities for managing human-caused ignitions

Effective and Efficient Wildfire Response

From a national perspective, the primary challenges regarding suppression response are centered on issues surrounding large, long-duration wildfires. This is certainly not to discount or say that local response issues are unimportant. Indeed, all wildfires begin as local response events. It also is a misnomer to talk about priorities whenever large wildfires are concerned. In truth, all large wildfires are high-priority wherever they occur because of their unparalleled potential for harm. Conversely, large wildfires also have considerable potential for ecological benefits because of the extensive areas that they affect. Thus, an ideal national prioritization map would show where large wildfires are likely to occur, where they are likely to have negative overall social or ecological effects, and where they would likely produce positive resource benefits. Such a map would be extremely useful for prepositioning of response resources, planning containment or suppression tactics, and even planning for post-fire rehabilitation.

Unfortunately, creating such a map using the relatively coarse scale of counties as mapping units is fraught with difficulty. Many of the positive or negative effects of wildfire depend on small-scale, site-specific conditions on the ground and local weather conditions under which the fire occurs. It's common for areas to experience negative effects under extreme conditions, for example, but positive effects under

low or moderate intensity fire. Sophisticated modeling exercises have been used elsewhere to address this complexity using higher resolution data, but introduce their own analytical shortcomings. Generally speaking, one can obtain a more precise analytical solution using higher resolution data, but there is no guarantee that the answer will be more accurate.

A relatively simple first approximation to the ideal map can be obtained by overlaying the map of large wildfire potential (Large Long Duration Wildfire, figure 3.16) with the opportunities map for managing wildfires for resource objectives (figure 3.4). To simplify interpretation, large wildfire potential was divided into three categories and overlain with the wildfires for resource objectives map. The composite five-color map (figure 4.6) shows areas with relatively low likelihood of experiencing large fires (white areas on map), areas with moderate likelihood of large wildfires combined with beneficial use potential (light yellow), and areas with high likelihood of large wildfires combined with beneficial use potential (gold).

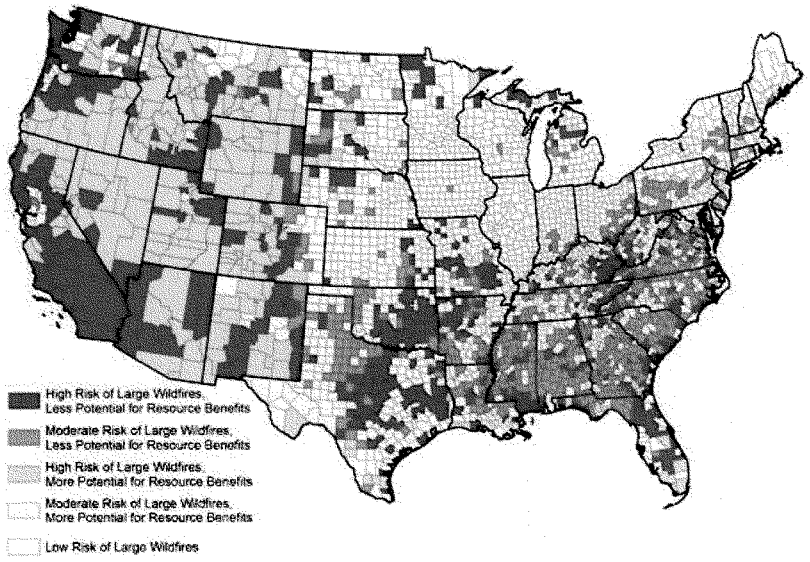


Figure 4.6. Intersection of the large, long-duration wildfire potential with the opportunities map for managing wildfires for resource objectives

The purpose of figure 4.6 is not to dictate the response or resource management objectives for all large or long-duration wildfires in these counties. All wildfires have to be managed in the specific context and locations in which they occur to ensure environmental issues and local conditions are addressed. Rather, the intent is to suggest that there are significant areas where greater flexibility in the management of large wildfires might be used.

Conversely, there are broad areas where the resource benefits from large or long-duration wildfires are likely outweighed by other concerns. One key to being able to use greater flexibility is the ability to anticipate or quickly assess the risk posed from an individual event. Ironically, the current suppression capacity in some areas is inversely proportional to the likelihood of a wildfire creating positive ecological benefits. That is, organizations as a whole are most effective at controlling wildfires that are likely to be beneficial, and least able to contain those wildfires that are likely to be most damaging. The net result is that we may be extinguishing many fires with the greatest potential for good. Enhanced, rapid risk assessment tools that help inform incident response decisions could be highly beneficial in this context.

Chapter 4 Summary

There are two primary elements to the National Strategy: a set of general guidelines for choosing among and implementing management actions and a set of four national priority maps. The spatial prioritization maps work in tandem with the opportunity maps presented in Chapter 3. Management options were mapped in an attempt to show where they would be most reasonable or potentially effective and generally were developed independent of each other. The prioritization maps reflect a higher level of aggregation in that multiple management options can be employed in the same location for similar purposes. Both sets of maps are intended to highlight opportunities and priorities, not to exclude the use of any management option from other locations.

Similarly, the purpose in developing the classification systems for counties that underlies the prioritization maps was to create a common set of narratives that would be broadly applicable, not to identify individual counties for a particular prescription. Therefore, if errors in data or interpretation erroneously led to a misclassification of a county, it is anticipated that more localized planning efforts would correct such errors and adjust county-level recommendations appropriately.

Additionally, implementation of any management option requires a trained, committed, and supported workforce. It is likely that the same individuals will be called upon to implement multiple facets of the overall strategy. For example, first responders may be the only ones with the requisite knowledge and experience to conduct prescribed burning in many locations. If they are occupied responding to wildfires, prescribed burning is cancelled or postponed. Similarly, the best ambassadors for prevention programs and community planning are often local firefighters.

CHAPTER 5 – IMPLEMENTATION

The Cohesive Strategy effort is remarkable, indeed unique, in terms of its broad scope and inclusiveness. The broad aspirations of the effort and the collaboration needed to approach it offer great strengths, but do not come easy. Reaching across all lands and including all parties in the development of a comprehensive and coherent effort to manage and live with wildland fire has required unprecedented effort. Even more effort will be required during implementation—where the vision and strategy become a reality through real-world activities on the ground.

Successful implementation requires three basic elements to be operating in tandem:

- **Strategic Alignment** – All parties agree to the same goals, principles, and strategic course of action.
- **Communications and Collaborative Engagement** – This includes governance, shared information and resources, communications, and monitoring and accountability.
- **Programmatic Alignment** – Individual agency or organization objectives are explicitly supportive of the national cohesive strategy goals, recognizing the disparate missions, roles and responsibilities of each, the cascade of decisions required, and fiscal realities and constraints.

The WFLC provides a national, intergovernmental venue for a collaborative approach to implementing the National Strategy. All partners and stakeholders to the National Strategy have a commitment and responsibility to take necessary actions for implementation. Those actions should take place in a coordinated, collaborative manner, using the actions and activities identified in Regional Action Plans, as appropriate.

Strategic Alignment

Considerable progress has been made with regard to strategic alignment during the multiple phases of the Cohesive Strategy efforts to date. The National Strategy presented herein and the subsequent National Action Plan set the strategic, intergovernmental direction for pursuing policy priorities and implementation of actions nationally. These outcomes of the Cohesive Strategy represent successful collaborative engagement at regional and national levels for the purposes of strategic planning. Moving into the next stages of implementation will require continuing and expanding collaborative engagement, but with a change in focus toward greater emphasis on programmatic alignment.

National Action Plan

The National Action Plan and the Regional Action Plans were developed to be complementary. The intent of the National Action Plan is to articulate a framework of national, strategic action for supporting the implementation actions and tasks necessary at various scales.

Actions will be derived from the following sources:

- National guidance and national priorities defined in this strategy;
- The barriers and critical success factors identified in Phase II and III of the Cohesive Strategy;
- Regional action plans containing actions that are national in scope or common to multiple regions.

Accountability and Monitoring

A set of national outcome performance measures will allow Congress, the national wildland fire management community, and other stakeholders to monitor and assess progress toward achieving the results for each of the three national goals. Establishing intermediate performance measures beneath the national outcome measures allows for a more narrowly focus means to measure the specific activities that must occur for progress to be made in achieving the desired national outcomes. Intermediate measures are statements describing the level of performance to be accomplished within a timeframe, expressed as a tangible, measurable objective or as a quantitative standard, value, or rate.

Throughout the Cohesive Strategy effort, it has been recognized that one size does not fit all in a country as large and diverse as the United States. Therefore, national outcome measures will flow directly from the national vision and goals, and will be intentionally broad to be inclusive of many different factors across geographic regions. Together, the national measures will enable us to communicate progress toward meeting the shared goals. The measures will help leadership and managers answer questions such as:

- Are landscapes resilient to wildfire in support of our management objectives?
- Can human populations and infrastructure in communities at risk withstand wildfire without loss?
- Is there effective collaboration in using risk management to improve the safety, effectiveness and efficiency of our wildland fire management actions?

Federal agencies are accountable to the Administration and Congress through formal performance measures and reporting requirements. National outcome performance measures as a result of the Cohesive Strategy effort would not supersede the formal agency performance measures, but should be used to demonstrate and report progress toward achieving the Cohesive Strategy goals. Agencies and organizations with a stake in wildland fire management will be encouraged to seek alignment with or incorporation of a shared set of national outcome measures into their own planning and performance processes. National outcome measures are important to drive progress, implementation of the Cohesive Strategy will include actions and commitments to collect the information required for these measures.

In addition to national outcome and intermediate measures, associated efficiency measures for each goal have utility in measuring the efficiency of investments related to significant cost centers associated with each goal. Specifically, efficiency measures are used to:

- Track priority investments by Cohesive Strategy goal, over time with the intent of establishing trend information (where applicable) on the effects of investments to achieve goal outcomes.
- Help assess which investments are the most cost-effective means of achieving the goals in order to make informed investment tradeoffs with respect to wildland fire program appropriations.

Communication and Collaborative Engagement

A National Communication Framework was developed to provide communication guidance and support to agencies, organizations, stakeholders, and interested individuals involved in implementing and institutionalizing the Cohesive Strategy. Keeping people informed, implementing communication processes that enhance and sustain collaboration among stakeholders, and guiding future communication efforts are all necessary components of implementation.

The communication focus now shifts from development to implementation, and new communication strategies are needed to meet implementation objectives. The vast majority of communications will originate with the many different stakeholder agencies and organizations. All stakeholders must be responsible for supporting communication and informing and joining in the formal and informal communication networks across organizations.

The communication focus also will shift from the national/regional level to the regional/local level as most Cohesive Strategy implementation projects will be undertaken by local community-based partnerships focusing on single or a few joint actions. The success of these partnerships will largely determine continuing support for the Cohesive Strategy and its enduring success. National communication objectives for institutionalizing the vision, goals, and national direction from the Cohesive Strategy include:

- Increase knowledge of the goals, guiding principles, core values, and national priorities in fire and land management organizations and expand other stakeholder knowledge and understanding;
- Improve stakeholder and public knowledge of wildland fire fundamentals;
- Mobilize higher education and extension resources to provide opportunities for stakeholders to improve their collaboration knowledge and skills;
- Improve and expand communication between scientists, program managers, specialists, and stakeholders implementing the National Strategy to ensure that the best science and proven professional practices are used;
- Promote evidence-based wildland fire prevention communications and education;
- Encourage and support a continuous, rolling, and collaborative dialog among stakeholders and across regions to enhance shared understanding, roles, mutual trust, and willingness to pool resources and take joint actions.

The importance of collaboration throughout the Cohesive Strategy effort, of hearing all the voices, and involving all the partners cannot be overemphasized. The time and care taken in developing this strategy will result in a better understanding of what needs to be done, and greater ease in working with the multitude of agencies and individuals collectively to reduce the threat of wildfire.

A FireScape Monterey workshop to identify strategies. FireScape Monterey works collaboratively in the northern Santa Lucia Mountains and the Monterey Coast, California. Photo credit: TNC Fire Learning Network.

Programmatic Alignment

Programmatic alignment involves ensuring that individual agency or organization objectives are matched to the larger national goals and that resources are committed toward attaining those objectives. Successful alignment requires that the disparate missions, roles and responsibilities of each agency or organization are recognized and fully considered, along with fiscal realities and constraints. Implementation necessitates decisions at multiple scales, suggesting a cascade of decisions, each reinforcing or complementing the other.

Roles and Responsibilities

Addressing wildland fire is not simply a fire management, fire operations, or WUI problem—it is much larger and more complex. Implementation of the National Strategy relies on people working together towards a shared vision and set of priorities. Each agency, partner organization, and individual homeowner has a role in implementing the National Strategy. Long-term success will only be achieved through a unified, collaborative, and focused effort among:

- Local, state, tribal, and Federal government agencies
- Non-governmental organizations and constituent groups
- Elected officials
- Citizens from communities across the Nation

Implementation requires understanding the differences that exist across the Nation and the tensions among partners and stakeholders. The National Strategy recognizes significant variation in land ownership and land use objectives. By understanding that variation and differences exist, the National Strategy becomes a platform for partners and stakeholders to embrace different roles and responsibilities to promote cohesive and efficient fire management across all jurisdictions.

Fire crews welcome air support at the 2012 Whitewater-Baldy Complex Fire in New Mexico. Photo credit: Kari Greer, National Interagency Fire Center.

One clear example of where agencies and organizations can play different roles is suggested by the spatial distribution of the lands that they manage (figure 5.1). At the national level, the USFS and BLM are the two largest land managers, with distinctly different areas of influence. Similarly, private landowners, as a collective, control a majority of the land base across the country. Continuing to strengthen relationships with key organizations that represent them as well as creating new partnerships is important in many areas to have an impact on the resiliency and management of the wildland fire landscape. Working with state agencies that provide technical assistance to private landowners is key for wildfire control, but management of the land still remains the landowners' purview.

The same discussion illustrated through the previous example can be examined for other Federal bureaus, state agencies, and other conservation partners as well. For example, in Nevada the primary conservation partner is the BLM. The BLM has a large role and responsibility in these areas as guided by land management goals and objectives defined in their land use and resource management plans. Other stakeholders, including local fire departments and individual landowners, also have important roles and responsibilities. Given the geographic span of influence in this area, the BLM has both an opportunity and responsibility to work with partners on wildland fire management.

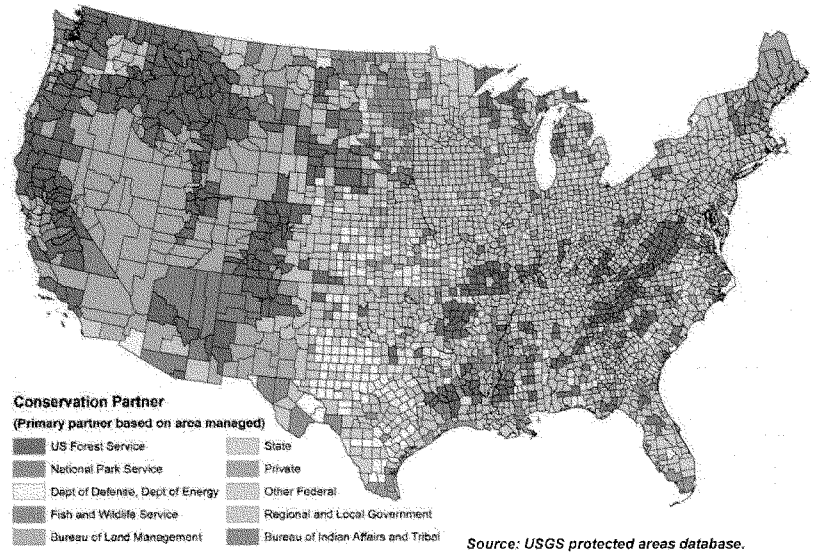


Figure 5.1. Primary conservation partners in each county based on area managed by each entity

Regardless of how much or little area an individual or agency controls, and regardless of what role or responsibility that entity has, collaboration is essential. With each partner doing their share, significant progress can be made to improve wildland fire management across the Nation. The National Strategy focuses on providing the best data and information available to make current investments more effective.

Informing Decisions at Multiple Scales

Translating national priorities into local action requires complementary implementation decisions to be made at multiple scales. This is often referred to as the "cascade of decisions." While allocation and implementation decisions cannot be mandated, cooperating agencies and organizations have a better chance of reducing overall risks by adopting strategic direction in the National Strategy and sharing information and analytical tools developed collaboratively. To illustrate the cascade of decisions possible, two examples are described below. The examples illustrate how separate agencies might use the national priorities, analysis information and tools, and national and regional action plans to inform choices made at various scales. These examples are hypothetical and may be implemented differently than described, but they illustrate how the information could be used.

Example 1. Grants for Mitigation and Assistance to Communities

> *The Department of Homeland Security (DHS) through the Federal Emergency Management Agency (FEMA) oversees several grant programs aimed at providing support to states, counties, local fire departments, and communities to prepare for and recover from wildfire. It is possible that FEMA, with the assistance of the U.S. Fire Administration (USFA), could establish criteria recognizing that some counties across the United States are more likely to experience damaging wildfire than other counties. The National Strategy established spatially explicit priorities for addressing Home, Community and Other Values as Risk and national priorities for Managing Human-caused Ignitions. These priorities could be used to review and refine grant-funding priorities for applicants with proposals seeking to address wildfire risk in the high-priority areas. The states, in turn, could encourage and prioritize submissions from counties and communities that are within the high-priority areas. The current FEMA Assistance to Firefighters Grants and Fire Prevention and Safety Grants are competitively awarded directly to local fire departments (and other eligible applicants). The FEMA could use the National Strategy priorities to aid in reviewing and awarding grants.*

Example 2. Federal Investment in Reducing Fuels

> *The USFS invests considerable effort in fuels reduction. The funding and prioritization process has regional and national components. The National Strategy's priorities for broad-scale fuels management could help to inform the funding and prioritization processes at the regional and national levels. The current prioritization process could include the national spatial priorities for managing fuels as one layer in the overall analysis with emphasis on areas analyzed as likely to benefit from broad-scale fuels management treatments. If adopted at the regional and national levels, the use of funding to prioritize treatments should result in more efficient and effective treatments to achieve broad-scale fuels objectives.*

A benefit of defining goals and priorities from an intergovernmental perspective is the ability of key stakeholders to contribute to a more holistic and effective approach to addressing wildfire risk. The examples discussed illustrate the potential applicability of the National Strategy to existing decision processes for resource allocation and implementation decisions. Reviewing existing allocation and implementation decision processes in light of the national strategic priorities may reveal opportunities for greater efficiency and effectiveness. Likewise, seemingly independent decisions can have a greater impact when focused on a priority that is shared among the many stakeholders. Leveraging resources—a guiding principle of the Cohesive Strategy—is enhanced by programmatic alignment of individual decisions with common goals and priorities.

Conclusion

The ultimate success of the Cohesive Strategy effort depends on how strategic direction and national priorities can be translated into the on-the-ground, local actions of agencies, organizations, governments, and individuals with meaningful cumulative effects. Planning efforts thus far have established a firm foundation for achieving strategic alignment, one of the three pillars of a successful strategy. Collaborative engagement, a second pillar of success, has been a staple of the planning efforts thus far, and will continue to be a high priority for involved partners.

The final pillar, programmatic alignment, is unique in that it begins to shift the focus back to individual roles, responsibilities, and actions of entities, agencies, organizations, and the public at large. Alignment with the strategic direction and national priorities is essential in this shift. As implementation proceeds, actions become far more specific and less nebulous. Implications in terms of cost, who acts, and who benefits are describable. Tradeoffs among actions become clear. By establishing national priorities and ensuring alignment of programs, policies, regulations, and actions to national direction, meaningful reductions in risk are possible through concerted, collaborative implementation.

APPENDIX A: ACKNOWLEDGEMENTS – COMMITTEES, COUNCILS, AND WORK GROUPS

National Science and Analysis Team

Phase III Contributors

The National Science and Analysis Team is led by Danny C. Lee (USDA Forest Service) and Thomas M. Quigley (METI Corporation) and included over 60 individuals from various agencies, organizations and universities (see Phase II report).

The national analysis described in this report was completed by a small team from the NSAT using much of the information assembled and prepared previously by the NSAT. In addition to Drs. Lee and Quigley, the national analysis team included Steve Norman and William Christie from the USDA Forest Service, and James Fox, Karin Rogers, and Matthew Hutchins from the University of North Carolina – Asheville.

In addition the NSAT, a national science advisory committee was assembled to support the NSAT in completing the national analysis. The members of that committee included Jenna Sloan (DOI), Rob Doudrick (USFS Research), Douglas MacDonald (IAFC and WRSC), Paige Lewis (TNC), Mike Zupko (SE RSC), Brad Simpkins (NE RSC), Caitlyn Pollihan (States), and Dan Olsen (FS).

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APPENDIX B: COHESIVE STRATEGY ACHIEVEMENTS, RESOURCES AND REFERENCES

The catalyst for the effort to develop a cohesive strategy was the Federal Land Assistance, Management and Enhancement (FLAME) Act of 2009. Over the past three and a half years, significant milestones were achieved and described more fully as resources below. The National Cohesive Wildland Fire Management Strategy (Cohesive Strategy) effort was designed as a three-phased process to allow for the inclusiveness necessary to understand the complexities of managing wildfire risks across the Nation. Throughout the entire effort, applying best available science and creating environments for strong stakeholder engagement were established as critical to success.

Providing a Foundation

In 2010, the WFLC, agency leadership, and stakeholders agreed on the Cohesive Strategy goals: (1) Restore and Maintain Landscapes; (2) Fire-Adapted Communities; and (3) Response to Wildfire. In addition, the WFLC adopted the following vision for this century: To safely and effectively extinguish fire when needed; use fire where allowable; manage our natural resources; and as a Nation, to live with wildland fire.

More detailed information on the evolution of the Cohesive Strategy including public engagement, and approach can be found on www.forestsandrangelands.gov.

Foundational Documents

- Federal Wildland Fire Management Policy & Program Review 1995
- Quadrennial Fire and Fuel Review Report 2005
- Quadrennial Fire Review 2009
- A Call to Action, A New Wildland Fire Accord: It is in your Hands
- Mutual Expectations for Preparedness and Suppression in the Interface
- ["Missions Report"] Wildland Fire Protection and Response in the United States: The Responsibilities, Authorities, and Roles of Federal, State, Local, and Tribal Government
- A Collaborative Approach for Reducing Wildland Fire Risks to Communities and the Environment: 10-Year Strategy Implementation Plan (December 2006)

Phase I – The Blueprint

The first phase of the Cohesive Strategy was a blueprint for developing a wildland fire strategy that would not be limited to Federal lands, but would consider the needs of all lands and balance regional needs and perspectives with national planning.

Phase I set up the leadership and engagement structure for creating the strategy.

- Wildland Fire Leadership Council (WFLC) – strategic oversight of all wildland fire policies, goals and management activities.
- Wildland Fire Executive Council (WFEC) – an intergovernmental Federal Advisory Committee Act committee established to advise the Secretary of Agriculture and Secretary of the Interior on national policy issues, including the Cohesive Strategy.
- Cohesive Strategy Subcommittee (CSSC) – created to advise the WFEC on Cohesive Strategy development and implementation.
- Three Regional Strategy Committees (RSC) – created to advise the WFEC, to represent the regional perspectives, and to complete regional assessments and action plans in Phases II and III.
- The National Science and Analysis Team (NSAT) – created to advise the CSSC and WFEC, to complete the science and analyses necessary for completing Phases II and III, and to document science findings in established peer-review processes.

In this way, the Cohesive Strategy was conceived as having both a top-down and bottom-up flow of information. The first phase involved developing a mutual understanding of the national challenges and goals and the science-based process for analyzing regional and national needs.

Phase I concluded with the presentation of the blueprint to Congress in two documents:

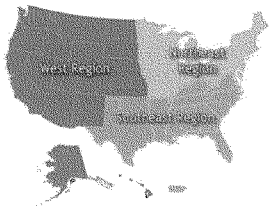
- A National Cohesive Wildland Fire Management Strategy
- The Federal Land Assistance, Management And Enhancement Act Of 2009 Report to Congress

The NSAT completed a Risk Framework Report, at:

- A Comparative Risk Assessment Framework for Wildland Fire Management: The 2010 Cohesive Strategy Science Report http://www.fs.fed.us/rm/pubs/rmrs_gtr262.pdf

Phase II – Regional Assessments

In Phase II, the three regions—the Northeast, the Southeast, and the West—completed, analyzed and compiled regional assessments including landscape elements, ecological processes, and human values of local resources. Diverse stakeholders in each region met to identify regional challenges and opportunities, as well as key priorities. They agreed upon regional goals, which mirrored the national goals. And, the regions focused on how the processes of wildland fire, or the absence of fire, affect their values-at-risk. The NSAT worked with the regions to develop the assessments. A national report combined the findings from the three regional assessments to give a national perspective.



The Cohesive Strategy Phase II reports include assessments from each of the RSCs, the NSAT, and the Communications Framework.

National Resources

- A National Cohesive Wildland Fire Management Strategy-Phase II National Report
- National Science Report – Phase II http://www.forestsandrangelands.gov/strategy/documents/reports/phase2/NSAT_Phase_2_Summary_Report.pdf

- Communication Framework for A National Cohesive Wildland Fire Management Strategy

Regional Assessments

- A National Cohesive Wildland Fire Strategy: Southeastern Regional Assessment
- A National Cohesive Wildland Fire Strategy: Northeast Regional Assessment, September 30, 2011
- A National Cohesive Wildland Fire Management Strategy: Western Regional Assessment and Strategy

Phase III – Science-based Risk Analysis Reports and Action Plans

Phase III is the conclusion of the planning and development of the National Strategy and the National Action Plan. There were three distinct sets of milestones. The first part of Phase III focused on regional understanding and analysis of issues by the RSCs. The NSAT collected data from multiple sources to provide consistent information to the regions for their analysis of wildfire risk. The regions considered alternatives for emphasis, and Risk Analysis Reports were submitted and accepted by the WFEC. In additional to the individual Regional Risk Analysis Reports, a National Risk Analysis Report for Phase III was developed by the CSSC and accepted by the WFEC.

Regional Risk Analysis Reports

- Northeast Regional Risk Analysis Report
- Southeast Regional Risk Analysis Report
- Western Regional Risk Analysis Report

Regional Action Plans

The second part of Phase III focused on creating Action Plans for each region. The Action Plans looked at the issues identified in the Risk Analysis Reports and devised specific actions, tasks and responsible agencies to accomplish those actions. The Regional Action Plans were submitted and accepted by the WFEC. The WFEC tasked the CSSC to use the regional action plans to inform the development of the National Action Plan.

- Northeast Regional Action Plan, April 2013
- Southeast Regional Action Plan, April 2013
- Western Regional Action Plan, April 2013

The third part of Phase III focused on developing the National Strategy and National Action Plan. The NSAT also developed a science report based on the national risk analysis conducted to support the development of the National Strategy and National Action Plan.

Science and Analysis Published Work from Phase III

The Cohesive Strategy Decision Support Tools Library includes a number of resources based on the analysis completed as well as the published science report, *Wildland Fire in America: The Scientific Basis for the National Cohesive Wildland Fire Strategy* at:
http://www.forestsandrangelands.gov/strategy/thestrategy.shtml

Cohesive Strategy Decisions Support Tools Library

Additional resources, tools, and information can be found in the Cohesive Strategy Decision-Support Tools Library at: http://www.forestsandrangelands.gov/strategy/thestrategy.shtml.

APPENDIX C: BARRIERS AND SUCCESS FACTORS

The Regional Strategy Committees (RSC) were tasked with conducting assessments, prioritizing actions that were responsive to regional goals, and identifying regional challenges and opportunities for improved land and fire management while ensuring consistency with the three national goals. In addition, the RSCs also identified a set of National Priority Barriers (barriers) and Critical Success Factors (success factors) that were found common to multiple regions. Barriers are obstacles that must be mitigated in order to be successful. Success factors are components that are important for improvement. Initially, a list of over 40 barriers and success factors was identified. Through discussions among the RSCs, the Cohesive Strategy Steering Committee (CSSC), and the WFEC, the following list of 11 were selected as being common to all regions and of significant importance to be addressed first.

- *Success Factor*: Fuels Management on Private Land
- *Success Factor*: Fuels Management on Federal Land
- *Success Factor*: Growth Management, Land Development, and Zoning Laws
- *Barrier*: Inefficiencies in the National Qualification Standards
- *Barrier*: Policy Barriers and Process Complexities for Sharing Resources
- *Success Factor*: Enforceable Fire Prevention State/Local Ordinances
- *Success Factor*: FEMA Grant Programs
- *Success Factor*: Assisting Communities at Risk
- *Success Factor*: Investing in Firefighting Workforce
- *Success Factor*: Improving Data that Support Fire Management Decisions
- *Success Factor*: Intergovernmental Wildland Fire Governance

The barriers and success factors informed both the national challenges and management options analyzed for this National Strategy. Additional detail on each barrier and success factor is included below.

- **Fuels Management on Private Land** – There is a need to increase private land management assistance to complement and implement broader fuel reduction management objectives across fire-prone landscapes. There are a number of opportunities that should be examined to achieve increased fuels management on private land, including increasing the collaboration between actions taken on federal and private land as well as supporting federal conservation programs that provide assistance to achieve fuels management objectives across a landscape.

- **Success Factor: Fuels Management on Federal Land** – There is a need to increase private land management assistance to complement and implement broader fuel reduction management objectives across fire-prone landscapes. There are a number of opportunities that should be examined to achieve increased fuels management on private land, including increasing the collaboration between actions taken on federal and private land as well as supporting federal conservation programs that provide assistance to achieve fuels management objectives across a landscape.

- **Success Factor: Growth Management, Land Development, and Zoning Laws** – There is a need for growth management, land development, and zoning laws that require defensible space and wildland fire risk reduction actions as communities develop; and the maintenance of wildland fire risk reduction practices, e.g., defensible space, fire-resistant construction, hazard reduction, etc.

- **Barrier: Inefficiencies in the National Qualification Standards** – Address inefficiencies in the national qualification standards and procedures to increase response capabilities by developing one wildland fire qualification standard for the Federal, state, tribal, and local wildfire community. Currently, the publication National Wildfire Coordinating Group (NWCG) Product Management System (PMS) 310-1 provides qualifications for national mobilization and recognizes the ability to accept qualifications of local jurisdictions while in those jurisdictions. These standards are in sync with the Federal Emergency Management Agency National Integration Center (FEMA NIC) efforts to bridge the gap with local governments.

- **Barrier: Policy Barriers and Process Complexities for Sharing Resources** – There is a need to remove policy barriers and process complexities which affect the ability to effectively and efficiently share resources, not only for wildfire, but for fuels, prescribed fire work, and all-hazards situations. Under the 2010 Interagency Agreement for Wildland Fire Management (typically referred to as the Master Agreement) among the BIA, BLM, FWS, NPS, and USFS, agencies have the authority to share resources for fuels work; but the agencies are required to enter into separate agreements for personnel and other resources provided for planning and implementation of treatments and activities. Addressing inefficiencies in requirements and processes can improve the delivery and accomplishments of wildland fire management activities. Resource sharing is often hampered by travel restrictions, overtime caps, and administrative processes that require an inordinate amount of time to complete.

- **Success Factor: Enforceable Fire Prevention State/Local Ordinances** – There is a need to develop adequate, enforceable state and local ordinances related to wildfire prevention. There is clear evidence that small investments in fire prevention help reduce the high cost of fire suppression.

- **Success Factor: FEMA Grant Programs** – There is a need to examine existing grant programs aimed at providing support to states, counties, local fire departments, and communities to maximize fuels reduction across a landscape, and to prepare for and recover from wildfire. Grant programs present an opportunity to collaborate and promote fire-resilient landscapes and fire-adapted communities.

- **Success Factor: Assisting Communities at Risk** – Assist communities with evaluating their risk from wildfire. Provide communities with information and tools on how to mitigate risk from wildfire, create and conduct activities to become fire-adapted, and track their progress. Communications, education and outreach efforts must promote self-assessment and a connection to local expertise to sustain mitigation efforts.

- **Success Factor: Investing in Firefighting Workforce** – Invest in the firefighting capacity at the local level. Capacity from all entities with fire response responsibilities must be commensurate with the workload need and risks posed by wildfire, which in many areas is increasing. Investment in the fully trained firefighting workforce provides well-qualified firefighters on the ground to mitigate risk and hazards, capability to accomplish local risk mitigation projects, and initial attack success. In the long term we face a generation gap in the fire workforce available for future leadership of the program.

- **Success Factor: Improving Data that Support Fire Management Decisions** – Improved accuracy of LANDFIRE and other data is needed to support planning and analyses at various scales. LANDFIRE data are being used nationally to depict existing vegetation, surface and canopy fuels, fire regime condition class, and estimates of national fire hazard or risk. Without accurate data, many assumptions and actions based on these data will be compromised. There is a need for more realistic and accurate depiction of where wildland fire hazard or risk actually occurs across the country, which can be used to base decisions upon.

- **Success Factor: Intergovernmental Wildland Fire Governance** – There is a need for collaboration in intergovernmental wildland fire governance to serve the needs of all jurisdictions in both wildland fire and all-risk incidents.

APPENDIX D: GLOSSARY

Abiotic – In biology, abiotic components are non-living chemical and physical factors in the environment.

Barriers – Policy or administrative impediments that must be removed for the Cohesive Strategy to be successful.

Biotic – Of, relating to, or resulting from living things, especially in their ecological relations

Collaboration - 1. Groups working together; 2. Groups working together to resolve difficult environmental issues through mediation, negotiation, and the building of agreements.

Critical success factors – Policies, programs, agreements, partnerships, resources, and other factors that must be present for the Cohesive Strategy to be successful.

Fire-adapted community – Human communities consisting of informed and prepared citizens collaboratively planning and taking action to safely co-exist with wildland fire.

Fire-adapted ecosystem – An ecosystem is "an interacting natural system, including all the component organisms, together with the abiotic environment and processes affecting them" (NWCG Glossary). A fire-adapted ecosystem is one that collectively has the ability to survive or regenerate (including natural successional processes) in an environment in which fire is a natural process.

Fire community – A term that collectively refers to all those who are engaged in any aspect of wildland fire-related activities.

Fire exclusion – The land management activity of keeping vegetation or ecosystems from burning in a wildland fire.

Fire management community – A subset of the fire community that has a role in and responsibility for managing wildland fires and their effects on the environment.

Fire science community – A subset of the fire community consisting of those who study, analyze, communicate, or educate others on the components of fire management that can be measured, such as fire behavior, fire effects, fire economics, and other related fire science disciplines.

Resilient – Generally referred to in this document as "resilient ecosystems," which are those that resist damage and recover quickly from disturbances (such as wildland fires) and human activities.

Regime – A fire regime is the pattern, frequency, and intensity of wildland fire that prevails in an area.

Risk – A situation involving exposure to danger; the possibility that something unpleasant or unwelcome will happen.

Stakeholder – A person or group of people who has an interest and involvement in the process and outcome of a land management, fire management, or policy decision.

APPENDIX E: ACRONYMS

BAER	Burned Area Emergency Rehabilitation
BAR	Burned Area Rehabilitation
BIA	Bureau of Indian Affairs
BLM	Bureau of Land Management
CWPP	Community Wildfire Protection Plan
DHS	Department of Homeland Security
DOD	Department of Defense
DOI	Department of the Interior
EACG	Eastern Area Coordinating Group
FEMA	Federal Emergency Management Agency
FEPP	Federal Excess Personal Property
FFP	Fire Fighter Property
FFT2	Firefighter 2
FLAME	Federal Land Assistance and Enhancement Act
FLN	Fire Learning Network
FRG	Fire Regime Group
FWS	U.S. Fish and Wildlife Service
FOC	Fires of Concern
GACC	Geographic Area Coordination Center
GAO	Government Accountability Office
IAFC	International Association of Fire Chiefs
IMT	Incident Management Team
ITC	Intertribal Timber Council
JFSP	Joint Fire Science Program
MAC	Multi-Agency Coordination
MNICS	Minnesota Incident Command System
MOA	Memorandum of Agreement
MOU	Memorandum of Understanding

NAASF	Northeastern Area Association of State Foresters
NACo	National Association of Counties
NASF	National Association of State Foresters
NEMAC	National Environmental Modeling and Analysis Center (UNC Asheville)
NFPA	National Fire Protection Association
NGO	Non-Governmental Organization
NIFC	National Interagency Fire Center
NLC	National League of Cities
NPS	National Park Service
NSAT	National Science and Analysis Team (for Cohesive Strategy)
NWCG	National Wildfire Coordinating Group
OWF	Office of Wildland Fire (DOI)
PPE	Personal Protective Equipment
RSC	Regional Strategy Committee
SRS	Southern Research Station (USDA-USFS)
TNC	The Nature Conservancy
USDA	U.S. Department of Agriculture
USFA	U.S. Fire Administration
USFS	U.S. Forest Service
VFA	Volunteer Fire Assistance
VFD	Volunteer Fire Department
WFEC	Wildland Fire Executive Council
WFLC	Wildland Fire Leadership Council
WG	Working Group
WGA	Western Governors' Association
WUI	Wildland-Urban Interface

McCain - Questions for the Record (QFR)
Senate EMDC Subcommittee hearing on Wildfires
June 5, 2014

Questions from Senator McCain for Kevin O'Connor, International Association of Firefighters

Question 1:

As you may know, both the Congressional Research Service (CRS) and the Congressional Budget Office (CBO), two non-partisan and non-political entities, conducted separate analyses of S. 1875/H.R. 3992, the Wildfire Disaster Funding Act. Both entities warned that there could be a potential impact to Fire Management Assistance Grants (FMAGs). Are you familiar with each of these analyses?

Yes. As you know, the Fire Management Assistance Grant Program provides funding to state and local governments for the mitigation, management and control of fires which threaten to cause a major disaster. However, by protecting fire mitigation funds, the Wildfire Disaster Funding Act will help contribute to the health of our nation's forests, and quite likely, a reduction in the number and severity of large wildfires, which would subsequently reduce the need for wildfire suppression funds in a potential disaster.

Question 2:

As you know, FMAGs are critical sources of funding for state, tribal and local fire departments. FMAGs can be used to address wildfire emergencies. FMAG's are budgeted for and funded out of FEMA's Disaster Relief Fund (DRF). In 2013, FEMA spent $109 million on FMAG grants—which was $37 million above their budget estimate. Thus far in 2014, $46 million has been obligated for FMAGs.

That CBO analysis of S. 1875/H.R.3992 states the bill: *"could result in reductions to the caps on discretionary spending for disaster relief. Under either bill, if the discretionary cap was adjusted upward to provide additional funding for wildfire suppression in any year, the cap on disaster relief would be lowered in the following year to offset that adjustment."*

The CRS analysis states: *"Under Section 2(b), the amount of new budget authority that is provided pursuant to the wildfire adjustment interacts with the existing disaster relief adjustment, and potentially would lower the amount of budget authority that would otherwise be eligible for the disoster relief adjustment each fiscal year... For example, if $1.5 billion was provided under the wildfire adjustment in FY2014, the FY2015 cap on the disoster relief adjustment would be $1.5 billion lower in FY2015 than it otherwise would be if not for this new wildfire adjustment."*

In other words, if the spending of DRF funding interacts with wildfire funding in one fiscal year, FMAG assistance could be affected by a lowered cap adjustment in the next fiscal year. This is particularly disconcerting as climate experts predict an increase in wildfire, and hurricane and other natural disasters currently covered by the DRF. According to CRS, FMAG's budget authority would be impacted

regardless of its status as a "base funding" program because the DRF is "*a single pot of money*" used to pay for these activities.

(a) Are you concerned that this proposal could affect FMAG assistance?

(b) Do you foresee the federal government needing to spend more funding on wildfires, and if so, does S. 1875's interaction with the DRF/FMAGs concern you?

(c) Would you agree that forest thinning projects can reduce the cost and severity of large wildfires?

Under the current funding mechanism by which we fund wildfires suppression, mitigation accounts are regularly robbed to fund suppression activities. Unfortunately, this results in fewer dollars towards mitigation, resulting in larger and more destructive fires, which results in more money needed for suppression. It is a Catch-22. The Wildfire Disaster Funding Act resolves this spiral by ensuing wildfire mitigation funds are maintained, even in a bad fire year. We believe that preserving mitigation funds will help reduce the number and severity of significant wildfires, and will thus reduce the need for ever-larger pots of suppression dollars.

That said, the solution to the nation's wildfire problem is complex and multi-faceted; no one solution can prevent large wildfires that threaten people and property every year. Mitigation efforts in high risk areas including hazardous fuels reduction, restoration activities, enhanced building codes, amended zoning regulations and public education are all important components to reducing wildfires.

Question 3:

CBO also warns that the bill "*could lead to the changes in the timing or amount of funds provided in subsequent appropriation bills.*" In other words, to tout that S. 1875 "doesn't score" is misleading because the bill does not alleviate the need for apparitions of additional monies for wildfires. It simply provides appropriators with additional "budget room," which could be spent by appropriators on any other non-defense discretionary program. We're told that some Members of Congress and senior Administration officials have suggested using this added budget room to spend more Land and Water Conservation Fund grants or grants for the Chesapeake Bay preservation effort.

In general, would you support improving the bill to ensure that the legislation and subsequent appropriation bills should target funding towards wildfire suppression activities and activities to reduce wildfire suppression costs, like forest treatment projects?

We strongly support robust funding for both wildfire suppression and wildfire mitigation activities. I have not personally spoken to any Members of Congress who has indicated they wish to use any potential additional budget room on the programs you suggest. I believe that Congress should have the authority and ability to spend available appropriations on the nation's most pressing priorities, and am hesitant to restrict spending to any particular program. Restricting spending to a program where spending is not needed is a wasteful use of American taxpayers' dollars.

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